

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



LIBRARY  
OF THE  
UNIVERSITY  
OF TORONTO

# Cleanings in Bee Culture



VOL. XL. DEC. 1, 1912, NO. 23.



# Cleanings for 1913

---

The six special numbers for 1912 were received with such enthusiasm that we have decided to outdo our efforts of last year, and we take pleasure, therefore, in presenting the following special numbers for 1913:

## Jan. 1--Beginners' Number

Experiences and mistakes of beginners. Beginners' questions. An experience with a swarm of black bees.

## Feb. 1--Old-timers' Number

It is a matter of great pride to us that nearly sixty of our present readers were with us back in the "Windmill Days," more than forty years ago, when GLEANINGS first made its feeble start. We have letters from these men that are intensely interesting to the beekeeper of to-day, and we shall publish them. We intend this issue to be a glimpse of beekeeping in by-gone days. In this historical number we hope to show something of the drawbacks that had to be met when beekeeping was in its infancy. Many lessons may be learned by reading history.

## March 1--Women's Number

There have been repeated requests for a special number devoted to beekeeping for women. There were many requests for this last year, and we are at last prepared to furnish what we believe is a splendid array of material from

our beekeeping sisters who have made a success with their bees. There are thousands of other women who would be glad to take up bees were it not for their natural timidity, or their fear of stings. This number will serve, not to point out an easy path toward success, but to show how difficulties in the way may be surely overcome.

## April 1--Out-apiaries

Ever since our special number on automobiles was out we have received complimentary letters regarding it, and requests for more particular information of the same kind. In this special number we propose to have a full discussion of the automobile as used in out-apiary work, both for hauling and for going to and from the yard. In this number there will also appear many articles regarding the equipment used at out-apiaries as outlined in our editorial, page 610, October 1.

## May 1--Swarming and Increase in the North, South, East, and West

This is a subject that is of vital interest to every beekeeper in every locality, and no list of special subjects would be complete

without it. We shall make an effort this year to have articles from all parts of the country, so that no one can complain that the directions given do not apply in his special locality.

## July 1--Marketing Honey

We already have a number of splendid articles from experts in this line. Beekeepers are waking up to the possibilities of selling their crop as never before, and those who have heretofore sold at any old price are beginning to realize the mistake they are making. This number will be full of practical suggestions for profitably disposing of the crop.

## Aug. 1--Beekeeping as a Recreation

In addition to the army of men and women who are making beekeeping their sole occupation, there is a rapidly increasing number of professional men, lawyers, doctors, ministers, teachers, etc., who find beekeeping a delightful avocation. In this special number some of them will tell why beekeeping is so admirably suited for this purpose. Some "big men" are going to contribute to this number.

---

We are proud of the fact that GLEANINGS has never had to go begging for material. We have never seen the time yet when we did not have more good articles on hand than we could possibly use. Nevertheless, in spite of this, we are going to solicit this year a large number of the special articles mentioned above. We are not merely going to fill up our pages; we are going to try to give you the very best that we can obtain. Is all this only an introduction to prepare the way for an announcement of a higher subscription rate? It is not. The price remains the same—one dollar per year.

# Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, O.

H. H. ROOT, Assistant Editor.

E. R. ROOT, Editor.

A. L. BOYDEN, Advertising Manager.

A. I. ROOT, Editor Home Department.

J. T. CALVERT, Business Manager.

Entered at the Postoffice, Medina, O., as Second-class matter.

VOL. XL

DECEMBER 1, 1912

NO. 23

## Editorial

### THE OHIO STATE BEEKEEPERS' CONVENTION.

THE Ohio State Beekeepers' Association will hold its next annual convention at Columbus, Jan. 14 and 15, 1913, with an evening session on the second day. Secretary Shaw, also State Entomologist and State Foul-brood Inspector, is arranging a program. He advises that the editor of the *American Bee Journal*, Mr. C. P. Dadant, and Secretary Tyrrell, of the National Beekeepers' Association, will be present to give addresses on subjects to be announced later. GLEANINGS will also be represented.

This meeting of beekeepers will precede another meeting—that of the State Board of Agriculture on the 16th—and a number of prominent speakers on agricultural topics will be present on that date. There will doubtless be some who will be interested in staying over and taking in the meeting of the State Board of Agriculture.

Our readers may rest assured that Secretary Shaw will leave no stone unturned to make this an interesting and profitable meeting. Columbus is a great convention city. It is centrally located, and all beekeepers not too far away will find it greatly to their advantage to attend.

### GLEANINGS FOR 1913.

WE desire to call attention to the list of special numbers for next year as given on another page of this issue. We have spent much time and thought in going over the letters that we have received in response to our call for expressions from our readers in our September 1st issue; we have not been able to carry out all of the suggestions—that is, we shall not be able to devote a whole number to *all* of the subjects mentioned, but we have selected those that the majority have asked for. There have been a great many excellent hints, all of which we appreciate fully. We hope that we shall not have to turn any one down, for we are going to solicit articles from experts to be used at other times during the year in accordance with wishes ex-

pressed by a number of different readers. One of our readers suggests that entirely too little is known about judging a queen. This is true, and some time we hope to devote a whole number to the question; but as this will be impossible the coming year, we propose to use a number of articles on the subject in several different issues. We suggest that some of our old and reliable queen-breeders — G. M. Doolittle, J. P. Moore, H. G. Quirin, etc., tell us how *they* judge a queen. Let us hear from a good many, for this is a subject to which too little attention has been paid.

Another subject to which we shall give considerable prominence during the year, although we shall not devote any one number to it, is the question of shipping bees in carload lots with and without combs. This discussion has been only begun during 1912, and the prospects are bright for some startling results in the near future.

As intimated, we shall devote more space than usual to the shipping and production of comb honey. With the large number of extensive producers who have gone into extracted-honey production exclusively, something must be done to encourage the production of more comb honey. Prices of comb honey are bound to go up out of proportion to those of extracted. At the present rate, extracted will be a glut on the market in the near future, while comb honey will not be obtainable at any price. Such a condition ought not to be.

We have several interesting experiences of beginners on hand that we shall use January 1, but we need more. We can also use more articles from women for the March 1st issue. We desire expressions from some of our largest producers for our April 1st issue. For example, it may be a matter of surprise to some to know that one beekeeper has such an extensive system of out-apiaries that he recently ordered a dozen four-frame extractors, all of which are for his own *personal* use. We hope to hear from him for this special number.



As mentioned in our editorial in the October 1st issue, we solicit answers to the following questions: Do you use an auto-truck for your out-apiaries? If so, what is the saving over horses? Do you have one central extracting plant, and haul the combs to it? Do you have a separate plant at each yard? Do you have a portable extracting plant that may be moved from one apiary to another?

We want the very best that the country affords for our special number on swarming, May 1, and we are willing to pay good prices for it. If you have a good plan that you have tried thoroughly, let us hear from you on such subjects as the control of swarming, artificial swarming, and other methods of making increase.

We have some good material on new and up-to-date methods of selling honey, but we want more. Do not be afraid to tell the other fellow. We will make it worth your while.

For the August 1st issue we desire professional men who have found beekeeping a rest from worry and hard work to tell us of their experiences. If you think beekeeping is ahead of any other pursuit for this purpose, tell why you think so.

We especially solicit good clear photographs that tell a story; for, just as a child's picture-book is a never ending delight to his heart, so the illustrations in our modern magazines serve to break up the solid printed page; and what might be dry and uninteresting is rendered attractive and full of interest. There are other pictures that tell a story in themselves. They are the best of all, because they save the readers time in getting the idea.

#### SHIPPING BEES IN THREE AND FIVE POUND PACKAGES WITHOUT COMBS LONG DISTANCES.

SEVERAL times in these columns we have mentioned that we are conducting experiments in shipping bees in wire-cloth cages long distances without combs. For a number of years back we have made a success of sending combless bees in pound and half-pound packages all over the United States. During the fall we have shipped bees in three and five pound packages to a number of prominent beekeepers. These were made up precisely the same as the smaller ones, except they were on a larger scale. In lieu of combs, they contained a series of slats standing centrally through the cage. These slats we believe are important, as they provide a means of foothold and of support. Years ago, in our earlier attempts, we found that bees without combs would not

travel as well as those with. We finally came to the conclusion that it was a lack of proper support, and probably a lack of water. Our modern cages are, therefore, supplied with artificial supports—slats—and, during extremely warm weather, a bottle of water. The difficulty of supplying water *en route* has been met by the use of a small tin can with a self-sealing top. This is filled with water, and properly secured in the cage. In the bottom of the tin is punched a hole about the size of a pin. This hole, while very minute, gives the bees a chance to take a drink *en route*. Large holes would not be permissible, as they would allow the escape of too much water, incurring the risk of wetting down the candy and daubing the bees. While we have not as yet perfected this scheme for watering, we feel that, with a little more experimenting, we shall solve the problem to our satisfaction.

As before explained, we have sent, in an experimental way, bees all over the United States, in three and five pound packages. To give the reader something of an idea of the success we have so far achieved, we are presenting here letters from beekeepers to whom we have sent bees across the continent. These will speak for themselves:

A THREE-POUND PACKAGE OF COMBLESS BEES TO THE EDITOR OF THE AMERICAN BEE JOURNAL.

Mr. Root:—Your letter of the 11th and the cage of bees were both received on the 13th, the letter preceding the bees by only a few hours. As it was rather late in the day, they were not hived until the next day, when they were put into a queenless hive. They were in first-class condition, not more than a dozen being dead. It is certainly a success. However, we must say that the weather was not hot when they arrived. It had cooled off about two days earlier here, so that they must have met fairly cool weather most of the way.

We noticed a queen-cage in the box, so we thought you perhaps introduced the queen at the time of shipment. Would you kindly tell me about this, and how you succeed in such introductions? Or was the queen caged temporarily just for safety?

Hamilton, Ill., Sept. 16.

C. P. DADANT.

In relation to the matter of the introducing-cage which you found, we find it a little safer to introduce these queens in an ordinary nursery cage. The bees are shaken in the box from one or more hives, and then the queen is caged in the form you saw; and in about four or five hours the bees will eat out the candy and release the queen. While 90 per cent of the queens will be accepted when we drop them down into the cage in with the bees, we find we lose too many to warrant continuing that way; but when we cage the queen just before sending the bees out they go through in good order every time, so that the caging is really a precaution.

A THREE-POUND PACKAGE OF BEES TO THE SECRETARY OF THE NATIONAL BEEKEEPERS' ASSOCIATION.

The bees arrived Saturday afternoon in good condition. I did not liberate them until Sunday morning, and I could not see that any had died, other than would have been the case had they been in the hive all the time. The water-can looks to me like a valuable addition to the shipping-cage, and I can not see why bees would not go a long way in that case.

The candy which you had at the opposite end was practically all gone. Of course I don't know how much there was when they started, but it was practically all used up when I liberated the bees.

I am pleased to join in with you in any experiment of shipping bees without combs, and of getting them in the South to ship north for the honey-flow. If the bees can be purchased cheap enough in the South I can't see why the plan isn't practical.

I thank you for the bees. I have them right out in my back lot among the black raspberries.

Detroit, Sept. 9.

E. B. TYRRELL.

Mr. Tyrrell has since informed us that the bees are doing nicely.

A THREE-POUND PACKAGE OF BEES TO DR. E. F. PHILLIPS, OF THE BUREAU OF ENTOMOLOGY.

Dear Mr. Root:—I have you letter of the 12th inst., and am glad to inform you that the three-pound package of Italian bees which you shipped on the 10th arrived in excellent condition with not a single dead bee in it. It was very hot here the day of its arrival. I was in Philadelphia at the time, but Dr. McCray took care of them, and put them in a hive with drawn combs at the apiary. When the bees were run in the hive Dr. McCray noticed a small queen.

Dr. McCray reports that the water-bottle in the shipment was practically full when it was received here, so that evidently the bees had not drawn on it very much.

E. F. PHILLIPS, Expert in Charge.

Washington, D. C., Sept. 16.

A FIVE-POUND PACKAGE OF COMBLESS BEES SENT IN HOT WEATHER TO DR. C. C. MILLER WITH A LOSS OF ONLY 11 BEES.

This morning the telephone said, "Bunch of bees at express office for you." Your letter and the card announcing shipment came an hour or two later. The bees appeared in good condition. I prepared a hive for them with empty combs except one comb of solid sealed honey, all but about 25 square inches of brood. I had no idea where the bottle was, and couldn't guess why there was tin on top.

Wouldn't it be a good idea to have the bottle painted and sanded, so as to give the bees a foothold?

Number of dead bees, 11.

Weight of bees, 4 lbs. minus weight of water that escaped after I opened the cage.

You say the weather was hot for ½-pound package. Not only that, humidity was great. Hard to say whether bottle helped. It seems, however, the water must be a help.

The more I think about it, the more I think the tin should be roughened. That smooth tin overhead doesn't seem the thing to hang from.

I didn't tear it open to see, but so far as I can see no candy is left in the cage.

Marengo, Ill., Sept. 13.

C. C. MILLER.

We expect in the future to cover the tin bottles with rough paper or thin veneer wood to give the bees a foothold, and insulate them from the cold tin. Bees ought not to have "cold feet" any more than their owners.

A THREE-POUND PACKAGE OF BEES FROM MEDINA TO FLORIDA.

The package of bees arrived on the morning of the 17th, and they were released late in the afternoon of the same day. They were in fine condition—very few bees dead. The water-bottle was lowered about one inch; the food was entirely gone; the weather was very warm—mercury up to 95. It seems to me it would be better to ship in larger packages during extremely hot weather. I see no reason why this package is not entirely a success.

A. B. MARCHANT.

Appalachicola, Fla., Sept. 18.

A THREE-POUND PACKAGE OF COMBLESS BEES FROM MEDINA TO WASHINGTON STATE.

The three-pound package of bees with queen arrived to-day, for which accept my most sincere appreciation. It is really more than I expected. The bees arrived here at 11 A. M. Oct. 5. I took them in hand at once, as they were in a very feeble condition. There were none that could fly. Very few had strength enough to climb on to the combs, so I placed the combs on the flat and spread the bees on them, and in the course of half an hour they were as good as any bees. There was only about 4 ounces of dead bees. The water-can was as dry as a bone. The candy was about four-fifths gone, providing that small space on the end was full when you started the bees. It was here where a large number of the dead bees were, it would seem, for when the bees got dry they all crowded toward the candy. The space was just packed with dead bees; in fact, it was a hard mass of bees, so they could not get at the remainder of the candy. I believe that in four to six hours longer there would not have been a live bee in the box. I don't know what kind of weather they passed through; but here in Spokane it is fine. They were 24 hours longer on the road than they should have been, provided you shipped them Sept. 30, 8 P. M. At that rate they were nearly five days coming.

Spokane, Wash.

LEONARD FUNK.

It will be noticed in the case of the bees shipped to the State of Washington that in a few hours more they would have starved to death, as insufficient provision had been made to give the bees food and water. The very fact that the bees were as good as ever after they had been fed shows that more food and water will put them through in good shape even for long distances.

To demonstrate further the feasibility of shipping without combs, we are now proposing to send Mr. Morley Pettit, Provincial Apiarist, Guelph, Ontario, a three-pound package of bees in *cold* weather. Indeed, we may say that we have recently had a small package that we have kept several days, putting them outdoors in a freezing temperature. After they had been out a few hours we brought them back into a warm room. This procedure of warm and cold was continued for three days. At the end of that time, not a bee died, notwithstanding they were without even the protection of an inclosure other than the wire cloth. We will let our readers know the results.



## Stray Straws

DR. C. C. MILLER, Marengo, Ill.

A. I. ROOT, "Our Homes," p. 707, recalls this gem, whose authorship I do not know:

The sandal-tree perfumes, when riven,  
The ax which laid it low;  
Let man, who hopes to be forgiven,  
Forgive and bless his foe.

"THE VALUE of honey is attested by its introduction into the German army. Each soldier carries his tube of honey in his knapsack, as experience proves that the use of honey increases strength and endurance on the march."—*Deutsche Imker*, 249. If it's good for the strength of soldiers, why isn't it good for the strength of others?

E. D. TOWNSEND says, p. 725, that two combs with oldest brood are examined; and if no foul brood is found in them the colony is considered healthy. That's for American; it wouldn't do at all for European. European would have to be pretty bad if you couldn't find two healthy combs in every diseased colony. At least that is the case "in this locality."

REIDENBACH, in *Pfälder Bztg.*, thinks acid unnecessary in sugar syrup for winter food if water free from lime is used. It should not be heated more than 175 Fahrenheit. Through oxidation formic acid will be formed, and the sugar at least partly inverted. [We have never used acid in making syrup, and seldom if ever experienced any trouble with syrup going back to sugar. The ordinary 2-to-1 syrup (two of sugar and one of water) will be thin enough so it will require some ripening on the part of the bees—that is to say, such a syrup will be partially inverted after it is sealed. If so, there will be no trouble about its sugaring. A mixture of 2½ sugar to one of water possibly would have to have a little acid to prevent crystallization.—Ed.]

ON BEHALF of hundreds of beekeepers I want to make a plea that, when supply-dealers make a shipment of a number of packages, each package shall have plainly marked upon it its contents. That would often save a lot of trouble in opening a number of packages before coming to the right one. Another thing, if you don't want to make your customers swearing mad, *don't* send glass for shipping cases too thick to go in the grooves. That's an outrage that no beekeeper should be asked to endure, and I don't think I ever received glass with shipping cases in which an exasperatingly large number of pieces were not too thick. [We suspect a part of this trouble is due to the fact that some of the manufacturers, in order to get out a case

that would compete with the poorly made cases put out at planing-mills, have made their material too light. If the strips that hold the glass are thin, it is not possible to use a wide groove. The ordinary shipping-case glass is made of scrap glass, much of which is thick, and has to be sorted out before it is put into cases. Supply manufacturers will please take notice.—Ed.]

"DR. MILLER says in GLEANINGS that the smoke of cotton rags irritates bees and makes them sting."—*Apiculteur*, 316. Must be some mistake about that. I've used piles of cotton rags without finding that objection, and never heard it made by others. [*L'Apiculteur* is quoting the wrong Miller. It was Mr. A. C. Miller, of Providence, R. I., who said that cotton rags irritate bees. See GLEANINGS, page 664, Nov. 1, 1911, and page 102, Feb. 1, 1912. Our experience has been the same as that of Dr. Miller—or rather, we should say, we have used greasy waste made of cotton, and we have never discovered that it made the bees cross. Indeed, it seems to have more of a quieting effect on the bees than any thing else we have ever used. We have used it exclusively in our apiaries for the last five or six years.—Ed.]

A CORRESPONDENT of *Deutsche Bzcht.* says he fed daily ½ pound sugar syrup for 14 days, beginning August 15, and it failed to stimulate to laying the young queens of this year's rearing. He is told that he should have fed honey, for sugar alone is good to keep up heat in winter, but will not do for brood-rearing either fall or spring. [It would be our opinion that there was some functional trouble with the queen. Queens that will not lay under such stimulative feeding should be replaced. We have no difficulty in getting a queen to lay in the fall by stimulative feeding. Very often we find some colonies a little weak about the last of August or the first of September, and then we begin feeding to start brood-rearing. By Oct. 15 we have quite a force of young bees, and a hive full of sealed stores. Such a colony is in prime condition for winter.

We do not believe that the addition of honey would have very much effect. It is quite possible, in the case under consideration, that no natural pollen was available when the bees were fed, and none in the hive. If this were the case, no amount of stimulative feeding would start brood-rearing. The queen might lay eggs, but that would be as far as it would go.—Ed.]



G. M. DOOLITTLE, you say, p. 653, bees will winter in almost any cellar with a proper even temperature. I'm coming to think they'll stand almost any change of temperature with proper air. [We are not so sure of the first proposition; but we are more sure that the bees will stand a considerable range of temperature provided they can have plenty of fresh air. Too much light, however, and a temperature above 60 might cause large losses of dead bees in spite of an abundance of fresh air. It is not wise to strain these propositions too far. On the other hand, Mr. Doolittle's statement is reasonably correct; but in nearly all cases it is almost an impossibility to maintain a uniform temperature of 45 degrees Fahrenheit throughout the winter. At 45 the bees will go into a state of hibernation where the respiration is low and the consumption of stores is light.—Ed.]

HENRY REDDERT, you are quite right, as Editor Root says, p. 699, "in believing that the color should be a minor consideration compared to the taste" of honey. Pardon me if I say I think it is, and that you are mistaken in thinking "Beekeepers have spoiled their own game by advocating color for quality." Before there was a bee journal in which there could be such advocacy, there was the same preference by the majority for clover that there is now, and the same preference by a minority for buckwheat. I agree with the majority in preferring honey of lighter color, not because of its color, but because of its flavor, and you may advocate till you're black in the face without making me think I like buckwheat as well as clover. It's all a matter of taste, friend Reddert; and when the majority prefer the taste of the darker honey, the darker honey will bring the better price, and not till then. Neither do I believe, Mr. Editor, that it depends very largely upon what the customer is used to. I know those who greatly prefer buckwheat to clover, and yet they have seldom tasted buckwheat.

ARE YOU NOT just a bit daffy on the safety business, Mr. Editor? Regular shipping cases were considered safe with carriers. Then came safety-cases, which the catalog says "do not require carriers." Then when I raise the question, p. 683, whether safeties without carriers are as safe as regulars with carriers, you say, "We would recommend both safety cases and carriers combined." And then a dim fear is raised that you may have something more up your sleeve when you say, "We believe it is very wise to give comb honey all the protection it can reasonably have." [In the last few

months we have revised our opinion. We have personally seen large shipments of comb honey all smashed down for want of a little care in packing. In some cases it is a lack of safety cases, and in others it is a lack of carriers. Why, then, have we revised our opinion? Because we are convinced that comb honey, even in safety cases, can not be thrown down, piled up upside down, or on end without breaking. The carrier is relatively so much heavier that freight and express handlers can not throw it. It can not stand up on end, and it is too heavy to end up; and it can not be placed upside down. Large quantities of comb honey are broken down in common shipping cases when placed in carriers, showing clearly that the carrier *alone* is sometimes not a sufficient safeguard against breakage. We now believe, therefore, that not only carriers but safety cases should be used.—Ed.]

I MENTIONED your preaching "more extracted," Mr. Editor, p. 683, and you ask where. On p. 542, 1910, you say, "There is plenty of evidence to show a tendency on the part of comb-honey producers to go into the business of raising extracted," and conclude by saying, "It is not at all surprising that there should be a marked tendency toward the relatively cheaper article that apparently yields a larger return for the investment." [The quotation referred to on page 542 simply states a condition without any recommendation—at least was so intended. In all the subsequent preaching, recommending the production of *comb* honey, the condition referred to in the quotation relative to extracted was recognized. In our footnote on page 683 we made this statement: "Where did we continue to preach more extracted, as we are now advocating more comb-honey production?" Notice that we use the word *continue*. You have not yet furnished us the quotation called for. We may say, in further explanation of our policy for advocating the production of comb honey, that at the present rate of decrease in the production of comb honey the time will soon come (unless we can turn the tide) when there will be but very little comb honey produced. As we tried to point out, the trouble is not because comb honey is not in demand, but because of the poor and slovenly way in which beekeepers have been grading it and shipping it to market—so much so that the dealer has in many cases refused to handle it. But the public wants it; and at the present time there is a very strong demand for comb honey with but very little in sight, with a large supply of extracted.—Ed.]

## Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Monday, Nov. 11, a beautiful day, typical of the best weather we often get in this latitude during the period commonly called "Indian summer." Bees are flying freely, and some pollen is coming in from scattered dandelion and marshmallow blossoms. A good flight at this time means that bees in Ontario that are wintered inside will go into winter quarters in good shape, as many will carry the bees in as soon as the weather turns colder again.

\* \* \*

Colonies in Ontario are going into winter this year *very* populous in *young* bees, as brood-rearing was kept up very late in the season, unlike conditions of last autumn. Although so many old bees were in the hives last fall, yet we had splendid wintering; as a rule, we do not feel like making any calculations as to this year with changed conditions, although an orthodox view would be that many young bees make good wintering. With such a large population in the hives at present, the main danger will be starvation; and, as hinted at in a previous issue, I anticipate that many bees will starve in some yards this winter where no feeding has been done.

\* \* \*

"He was an honest man and a good citizen," page 679, Nov. 1. I thought when reading the death notice of that pioneer beekeeper, J. S. Harbison, that the quotation given and taken from friend Merriam's postal was about the best that one could wish for in the way of an epitaph. "An honest man." Do we really understand what is implied in the term? For surely if *honest* in the best sense of the term, all the cardinal as well as the minor virtues will be embraced in that phrase. Truly "a good name is rather to be chosen than great riches."

\* \* \*

Regarding the matter of nomenclature in bee terms, please notice that I found no serious fault with the use of the word "hybrid" as beekeepers misuse the term. Rather was I saying that, when we generally accept some words in their wrong application, why worry so much over another one on the list, even if it is in using such butchered English as "shook swarming"? The editor of the *Beekeepers' Gazette*, in a recent issue, shows that he is much opposed to the use of the word hybrid, as commonly used by beekeepers; but then I notice he has an "M. A.," hence

naturally would be more shocked at seeing poor English in print that would be the case with this scribbler with no very accurate understanding of words often used in scientific discussions. In so far as I am concerned, I still think it a great mistake that the term "black brood" was changed into the cumbersome "European foul brood;" and the latter term, according to many good authorities, is fully as misleading as the former one could possibly be. Even if the dead brood in this disease is not quite "black," everybody, nearly, knew what was meant by the term, and that is more than can be said of the name now used, as almost every journal gives evidence of some one using the general term "foul brood" when one has to guess which variety of the disease is meant.

\* \* \*

"The honey-board should always be left on the hive under the lid, whether for wintering or through the season, as few up-to-date beekeepers use cloths any more." So says D. Everett Lyon in the *Farm Journal* for April. All of you back numbers who still use a quilt, please take notice. As the writer is among this number, and intends to *stay* there, nothing personal is intended, you see. Mr. Lyon also says that April is the month to make increase. Even after taking into consideration the fact that he is so much south of us, I am under the impression that the date he gives would be too early. Can any one in his latitude tell us if his advice on the question is sound?

[This question involves the use of sealed covers versus absorbents for winter. Our own opinions in the matter have been modified somewhat during the last two years. For very cold localities, or for very severe winters, we are inclined to believe that the sealed covers will not give as good results as the porous cover with warm packing material through which the moisture can pass out and escape. When the absorbent packing is used, there must always be ventilation over the packing.]

As to April being the best month for making increase, that depends. All such statements should be qualified by the general conditions that may exist. We would say emphatically that, for most localities, April is *not* the month to make increase. The average beginner, if he attempts to divide during April in Mr. Lyon's locality, would, we fear, come to grief; and as he is in about the same latitude as ours we are sure he would.—Ed.]



# Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

Editor Root made a slight mistake, Oct. 15, p. 647, in saying that fourteen per cent of the bees were diseased five years ago, and less than two per cent in 1911. This did not refer to Colorado, but to Mesa County.

\* \* \*

The Colorado State Beekeepers' Association will hold its annual convention Dec. 12, 13, at the Auditorium Hotel in Denver, 14th and Stout St. There will be three sessions a day, and live ones too. We should have a larger attendance than for several years. One of the features of the meeting will be the automobile session, when dealers will show the merits of their different makes.

\* \* \*

Robert E. Foster, bee inspector for Montrose Co., and myself, called upon a farmer for the purpose of inspecting his apiary. The time of day was about noon, and the farmer inquired whether we had been to dinner. We replied that we had. He then said, "You better wait a little before opening the hives, for the bees are in to their lunch, and if disturbed they may stick their forks into you."

\* \* \*

## THE NEED OF NEW IDEAS IN BEE CULTURE.

Let us soon have work in bee culture at our agricultural colleges and high schools. Twenty or thirty young men could readily find places with beekeepers in Colorado each year if they were grounded in the principles of queen-rearing, making increase, and comb-honey production. Apiary management and system, if taught in a course in agriculture at an agricultural school, would equip a good number of young men to bring money-making ideas to the specialist beekeeper, and help him plan his work in a way that would save many a day's labor.

\* \* \*

H. H. Root tells us, p. 585, Sept. 15, that 2000 patents on hives have been taken out in this country, at an average cost of \$100—that is \$200,000—a large sum, and probably more than 99 per cent is loss. Beekeepers should put it down as a rule that new hives are not worth patenting. The difficulty here is that every one of these hive inventors thinks his invention is an exception to the rule. If one has a new hive or bee appliance in his head he should try it out; and if it proves good he can doubtless get a manufacturer to make them

and give him a percentage or can make and sell them himself. Don't waste money on a patent. If the money lost on worthless patented bee goods were available for commencing co-operative effort the beekeeping world would be far more prosperous. But for the good of co-operation it is best that it should develop slowly.

\* \* \*

## THE EFFECT OF WEATHER ON COMB HONEY; HUMIDITY AND GRANULATION.

It has been stated a multitude of times that such and such a locality produces a white, well-ripened quality of comb honey; and it has been the prevailing opinion here in the West that such honey does not readily granulate. There are disturbing factors in these so-called rules. A rainy season during the heavy flow tends to limit the flow, and, in addition, to cause the honey to be stored and sealed before being thoroughly ripened to the thickness that is common with arid State honey. Such honey was gathered this year in parts of the West, and it is white or light amber, but thin in consistency, and will show signs of granulation sooner than would be the case if the season had been drier.

\* \* \*

Geo. J. Kindel, the Denver freight-rate fighter, won out at the primaries for the Democratic nomination for Congress. He is one of the best-posted men on freight and express rates in the United States, and Colorado will be ably represented at Washington with him as our mouthpiece. Those of our members in the Colorado Association will remember what a stirring and vigorous address Mr. Kindel made before our last convention. I can assure western beekeepers that all we need to do is to present the facts of freight and express rates on honey before Mr. Kindel, and he is all action at once. Mr. Kindel states it as a fact that he has never gone before the Inter-State Commerce Commission with a grievance without securing a reduction in rates. That is a good recommendation for him. While Mr. Kindel is running on the Democratic ticket, he has shown his independence by running on the Prohibition ticket when he could not get any of the other parties to place him on their tickets. Mr. Kindel will undoubtedly be elected, as he has been actively engaged in work of a public character for years. It seems the Democratic machine was against him, but he won just the same.



## Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

The meeting of the California State Beekeepers' Association will be held in Los Angeles, Dec. 12, 13, 14, probably in the Y. M. C. A. auditorium, as that was the convention place last season. It is hoped that there will be a large attendance from all over the State. There is much work planned that is of vital importance to our industry, and no doubt it will be a busy three days' session. Every one who can possibly do so should be in attendance. If any of your neighbors can go, take them with you. Go; get acquainted, and enjoy a brief respite from your daily toil.

\* \* \*

The morning of Aug. 27 found me making hasty preparations for my anticipated motorcycle trip, which was to be the chief feature of my summer's vacation. Possibly I displayed a bit of nervousness, in part due to my enthusiasm as the time for starting drew near, and perhaps because of the fact that I was not very well acquainted with my mode of conveyance. I had traveled only a few miles at a time on my machine, for it had been in my possession but a short time, and was the only one of its make I had ever mounted; so I felt much the same as would a green hand on a strange horse in not knowing just what it might be expected to do. Bidding my family good-by I mounted, turned my face to the west, and rode down the valley. After passing through several miles of orange-groves I came to a point too low for citrus culture, alfalfa and grain taking their place for several miles, when I found myself nearing the city of Colton, which is the junction point of the A., T. & S. F. Southern Pacific and Salt Lake Railways, and a thriving city of four thousand inhabitants. "A short horse is soon curried," for it took only a few minutes to pass through, during which I turned south toward Riverside, passing through almost a continual succession of orange-groves for six or seven miles. At Eighth Street, in Riverside, I turned east, continuing through the orange-groves for a short distance.

When I reached the foot of Box Spring Grade I confronted an experience such as I had not previously had—that of taking a heavy grade with my machine. I had traveled only a short distance when my heart began to fail me, for it was with difficulty that I could get sufficient power to keep on the move, eventually being forced to pedal vigorously, and even then I seemed to be doomed for a walk up that long grade. I tried about every thing I

knew to increase the power. Finally, becoming desperate, I shoved the idler lever up a few notches. Instantly the machine shot up the grade, but did not continue, for before long I shut off the power and dismounted in order to regain my composure and wonder if it was really true that there was a "fool born every minute."

Mounting again I continued up the grade without difficulty. At the top I looked far away to the north of east into the Moreno Valley, while to the south and east lay the Perris Valley, wonderfully rich, but lacking an abundance of water to make it bloom to its full capacity. I turned toward Perris through a vast grain-growing section. After several miles of travel I was able to see that city in the distance—a small country town of a few hundred inhabitants. From Alessandro to Perris the roads were so perfect that I found myself almost in Perris before inquiring for the home of Mr. Warr, for whose place I was headed. I was informed that I had traveled more than a mile too far. I retraced the distance, and was soon greeted by Harry J., who is partner with his father, owners of 1000 colonies of bees in Riverside County. We were almost immediately called to dinner, after which the bee business was discussed pro and con, with the elder Mr. Warr participating. Father Warr had some very interesting experiences to relate about those golden days of old in the early 80's; but as I have no desire to have my friend subject to criticism, such as has been "handed" me, I will not relate his big-yield stories of 1884 and '86. Suffice it to say, these old-timers have seen yields that are almost incredible these days. The elder Mr. Warr says that, when Harry gets discouraged, he relates those big yields "of old" to him to give new courage.

From their home can be seen a great alfalfa-growing valley, which is of little value to the beekeeper because of being cut almost entirely for hay, and not allowed to bloom sufficiently to produce honey.

After a few hours' visit, Harry and I mounted our machines, and rode several miles over the hills to apiary No. 1. Typical of other ranges in this section, I found very little button sage, the main source of honey being white sage and wild buckwheat. Button sage was much more plentiful a few years ago, but has been largely destroyed by brush fires. Here I will mention the fact that button sage is destroyed root and branch by fire, but the white variety is injured for only one or perhaps two seasons.

# Conversations with Doolittle

At Borodino, New York.

## FINDING BLACK QUEENS DURING A TIME WHEN ROBBERS ARE BAD.

On p. 454, August 1, 1911, I told how to find a black or hybrid queen in the middle of a bright sunshiny day, when the larger part of the bees were out of the hive, by sitting with one's back to the sun, so that the bright sunlight would make it easy to see the queen as the combs were carefully raised from the hive and set in an empty hive close by. I also emphasized the using of caution so that the bees would not be stampeded, which is generally the main trouble in finding a queen, especially a black one. After reading this, Mr. Crane wrote, p. 615, Oct. 15, 1911:

Hello, friend Doolittle! I want to know if you can do that for an hour when no honey is coming in, without music about your ears in the key of seven sharps. Yet we have been finding them this season for many days, sorting out the old or defective ones with great rapidity. We use a queen-sieve, and are not troubled by robbing.

The first thing that took my attention in reading this was that friend Crane would have the readers of GLEANINGS think that he uses only black and hybrid queens. If this is the case I wish to say that he is entirely behind the times, especially in a locality where European foul brood has a foothold. All black and hybrid bees have mostly "gone the way of all the earth" in this locality through this disease, while the Italians seem to be fully capable of conquering it. Bro. C., you had better get on the Italian band wagon with your department in GLEANINGS. I did not write what I did because I kept black or hybrid bees, for I do not. I wrote it for beginners who had started with such bees.

The next thing to take my attention was that the editor of one of the departments in GLEANINGS should put off hunting out his "old or defective" queens until a time of scarcity of nectar had arrived in the fall. That *will* do if one is sick at the time this should be done; but to allow the beginner to believe that a time of scarcity of nectar is the best time to supersede old, poor, failing queens, is something hardly admissible in the columns of a paper like GLEANINGS. Very poor queens should be superseded in the time of fruit bloom, at which time there is very little trouble in finding even a black queen; for at that time of the year, and in the middle of a good day, two-thirds of the bees will be out after nectar. All

not superseded at the time of fruit bloom should be looked after during the closing days of the white-honey harvest, as this is the time nature seems to provide for this work. I have found that success attends almost every effort of the apiarist along this line at this time; hence I have used this time of the year for this work for a quarter of a century.

Now for Bro. Crane's question about working an hour with black bees during a time of scarcity of nectar without robbing going on. This depends largely on who has handled the apiary previously. If carelessly handled so that the bees have been angered, or if a *greater* carelessness has allowed the bees to get a taste of stolen sweets, then robbers and stings are almost sure to result when trying to find queens at such a time. As a matter of precaution, all doors and windows to every building containing honey should be carefully shut and guarded; and no one should allow himself to leave a section or frame of comb standing around for a *single* minute. If an apiarist has exercised the needed care along these lines during the season, there will be no trouble if the work of finding queens has been put off, so that it must be done at times of scarcity, where an *empty hive or a special box is used* to set each frame in as it is taken from the hive. I often work from 10 A. M. to 2 P. M. without robbers or stings at such times. The one thing that should be impressed upon the mind of the beginner in work of all kinds with the bees is, *carefulness* in manipulation. Too many go to work with a colony of bees as if they were to tear a house or barn down. Covers are jerked up and thrown down on the ground, frames are hauled out with a rush, without properly pushing the rest away from them, so that the bees are rolled over and mangled; and when the hive is closed "the bones" creak and break when doing this, without driving the bees away from the joints of the hives. Not long ago I visited an apiary where every joint at the top of the hives and supers was "carpeted" with dead bees which had been previously crushed, and the snapping of "bones" when the covers were put on made me fairly crawl. I protested, but was met with "My time is worth more than a few bees." No, friend Crane, black queens can not be found at any time of the year under these conditions, unless perchance your queen-sieve will do it.



# General Correspondence

## AMERICAN FOUL BROOD

### A Plan for Simplifying the Second Shaking by Giving the Bees Two Drawn Combs in Addition to Full Sheets of Foundation when They are Shaken the First Time

BY E. D. TOWNSEND

*Continued from last issue.*

In my first article I mentioned treating a colony for a neighbor where some of the combs in most of the hives were built cross-wise of the frame. The diseased colony had four or five combs built straight in the frames so they could be removed. The other side of the hive (that side containing most of the honey left over from the winter) was immovable, except as the combs were cut from the frame. These combs were cut out and taken to the honey-house, and none of it brought back to the hives. A portion containing brood was burned. I suppose all beekeepers who have had foul brood have been through a similar experience and know what a sticky mess we had. It could hardly be called treating of disease; but still, by proper management it was a success. As it was during the honey-flow, and as this beekeeper had not taught his bees to rob, we were not troubled along this line. The four or five straight combs of honey and brood that were left were spaced about two inches from center to center, in the middle of the hive, the cover returned, and left until the next morning. The last morning all the drip from cutting out these combs was cleaned up by the bees and stored in their combs, and the colony was ready for treatment by the McEvoy plan, the first handling being only for the purpose of putting the combs in shape to treat later.

Two weeks after the first shaking, the weak colony containing the two or three stories of diseased brood are ready to be treated, and are handled according to the plan I explained first, using two empty combs, a clean hive, etc.

I mentioned before that a weak colony is not strong enough to take care of more than a small part of the unsealed brood given them. I will now explain this.

We treat our diseased colonies at the opening of the clover flow, as I mentioned before, as clover is about all we can depend on for our surplus honey at this one yard in question, since the basswood has almost entirely disappeared; and as clover never yields more than four weeks, and in some seasons only two or three, it will be seen that, if we were to wait until all the brood

has hatched—that is, three weeks—very likely the season would be over, and there would be no use of treating the colonies, for they would then be of no value. After just two weeks the colony will be a powerful one; and if they can have a honey-flow lasting a week, the bees will fill their hives and be in good shape for winter.

After shaking we carry the old diseased comb to the bee-tight honey-house. There we cut them out of the frame into a metal washtub, because this kind can be washed easily, leaving what clean comb there may be in the frame. If the remaining combs contain honey we extract it, then cut out the rest of the combs and render them into wax, burning the old brood-frames as well as the combs in the tub that contain bad brood. Never extract honey containing diseased brood. Never extract honey from comb containing diseased brood.

Disease will exist in different stages of development in different colonies. Some will have but few diseased cells, while others will have a large amount of their brood dead, and yet be strong in bees. Still others may be found in the last stage of the disease—their combs nearly a solid mass of dead brood with not enough live brood hatching to keep up the number of workers so that the colony has dwindled considerably. If this condition is not taken care of it will soon be a prey to the robbers, and thus the disease will be carried to other colonies.

We have been accustomed to handle diseased colonies in three different ways, according to the stage to which the disease has progressed, as follows:

First, the colony having but a dozen diseased cells is considered quite harmless. The bees are shaken back into their own hives without disinfecting, direct on to foundation. They need no second shaking.

Second, a colony having considerable diseased brood, but not enough to reduce the number of workers appreciably, is treated as I have described above, with the two empty combs, etc. If the amount of diseased brood does not exceed that in one comb the bees are shaken back into their own hive which is not disinfected; but the two combs are shaken the second time, according to the regular plan I have described. If the colony has a large amount of diseased brood the hive should be disinfected, as I will explain later.

Third, a colony that has dwindled down until it is very weak because of disease is of no account, and is not saved. Bees in



the last stage of the disease are the most dangerous of all, and radical treatment is best in the long run. No honey is extracted from the combs in such a colony, all of them being burned except two which are left spaced rather far apart in the center of the hive. Later on, when no bees are flying, we carefully lift out these two combs, bees and all, and burn them. They can both be carried at once, and drop them on a fire. I should be glad to use chloroform in some way, as it seems cruel to burn the bees. This makes a clean job of the whole thing except the disinfecting of the hive.

While it may not be necessary to disinfect hives when treating American foul brood, we do so with all that have contained a great amount of diseased brood, and we also disinfect the hive where the diseased brood is stacked up to hatch. We have an idea that so much of this brood together is dangerous. The trouble and expense are but trifling, and in some cases it may prevent the disease from reappearing. We use a one-to-one-thousand solution of corrosive sublimate or carbolic acid, and simply immerse the hive parts in this solution. Nothing can live through it.\*

In producing extracted honey where American foul brood is prevalent there may be no better system to follow than the McEvoy. The hives should be numbered with good plain figures that can be seen clear across the yard. These ought to be made with paint so they will stand the weather from one year to another. Upper stories containing combs that have never been used by the queen should be provided, the theory being that these new combs can be cleaned up dry of honey by the bees, thus removing all spores of American foul brood they may contain. Combs that have been used for brood-rearing contain many cocoons that absorb the honey so that the bees can not get at it, and this honey is just as likely as not to contain spores of the disease. This explains why it is necessary to use combs for the extracting-super that have not been used for brood-rearing.

Having the proper combs, the plan of producing the honey from a diseased yard is much the same as though no disease were present, except that, before beginning to extract, each upper story should be numbered the same as the hive on which it was filled. The reason for this is that it is desirable to return them to the same hive that

they were on before, in order to get them cleaned from what honey is left after the combs are extracted. And the combs themselves must be returned to the same super, or else the system can not be carried out. If these precautions were not taken, and honey were extracted from a super taken from a diseased colony, then put back over a healthy colony, the disease would be carried and thus spread about the apiary. It will be seen that it is necessary to have the combs cleaned up by the same colony that filled them in the first place before they will be safe to use in hives containing healthy colonies. It usually happens that, when these combs are returned to the bees to be cleaned, the bees clean them and store the honey right back in the one they are cleaning, and this is quite undesirable. Mr. A. H. Guerrsey, of Ionia, Mich., told us in one of the conventions how to get the combs clean from honey, and I consider it a valuable kink. He waits until cool weather in October, when the brood is nearly if not all hatched out, before putting them on the hives. At this time bees are naturally carrying in winter stores from the outside combs to form their winter nest. Taking advantage of this trait of the bees, he gets his combs cleaned at that time. I consider this a valuable addition to the McEvoy plan of producing extracted honey in a yard containing American foul brood.

As upper stories can not be used year after year on the same hive, their numbers should be made in small figures with a pencil so that another year they may be used over a different hive if necessary. Some producers number the upper stories with cards which may be changed from one super to another as they are required.

#### CUTTING OUT THE DISEASED PART OF COMBS.

When we first discovered disease in the yard mentioned in my first article, the colonies had been worked for extracted honey without queen-excluders, and many of the combs in the upper stories had been used for brood-rearing during the season. We decided to follow the McEvoy plan for treating the yard. None of the combs that had had brood reared in them could be used again. As it so happened, we were at that time expanding our business to some extent, so some of the old extracting-combs had been taken to a new yard we were then starting. To replace these old combs taken away, new frames filled with new sheets of foundation has been supplied. Many of these had not been used for brood at all, and others had been used more or less according to the position they occupied in the upper story, or to the inclination of the

\* It seems to us that scorching the inside of the hive with burning straw or with a gasoline blue-torch is really quicker and more effective. We should have our doubts about such a weak solution destroying the spores of the disease.—Ed.

queen to go above. With a sharp thin knife, when the combs were warm, so they would not be brittle, the portion that had been used by the queen was cut out and rendered into beeswax, as were also the old black combs mentioned before. See illustration, next issue. After being trimmed, the combs in each extracting-super were one-third to one-half cut away. These were probably about as good as full sheets of foundation in these supers, so we saved some expense (and, we think, some time) by this method.

The next season these upper stories containing frames partly filled with comb were given to the bees promiscuously with apparently no bad effects. Of course the bees were not diseased very badly, for we started the treatment in time.

Remus, Mich.

### A PUSH-IN-COMB INTRODUCING-CAGE AND SHIPPING-CASE COMBINED

BY A. V. SMALL

The first queen I bought came in a Benton cage, and I tried to introduce her to a full colony according to the directions on the cage. She was rejected; the bees built cells, and reared a queen of their own. This was in June. In August I purchased another, and she too was rejected.

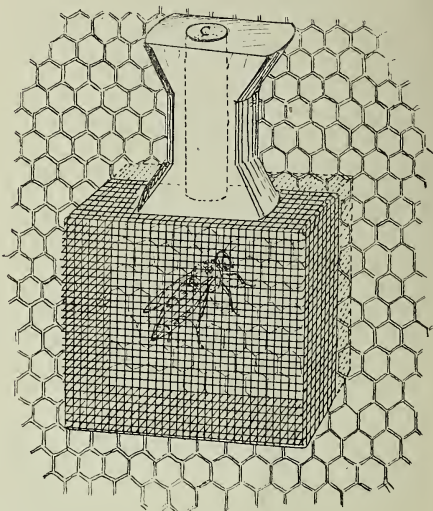
The next year I raised several queens from swarm cells built in one of my good colonies, and had no trouble in introducing them with the push-in-comb cage.

This matter of getting the queen on to the comb while she is being introduced has some important advantages. She more readily and more thoroughly acquires the colony odor; she and her attendants have access to the natural stores, and she prepares to lay and usually deposits a few eggs before she is released. The colony is very exceptional that will kill a queen that is depositing eggs in their own combs.

My push-in-the-comb shipping-cage is an ordinary Benton cage with the wood cut clear though in the two circular compartments occupied by the bees. The back of the cage is provided with a light tin slide. This forms a bottom for the bee compartment during shipment. The front of the cage is covered with a piece of screen wire extending down beyond the sides and end of the block half an inch or more. When this part of the wire is pushed into the comb, the back or bottom of the cage is brought in contact with the comb surface. Then after the tin slide has been carefully withdrawn, the queen finds herself on the

comb surface, but can not escape from the cage until the candy has been eaten away by the bees of the hive in the usual way.

After the tin slide has been withdrawn, a little piece of screen wire is pushed into the comb at the end of the block from which the slide was withdrawn. This prevents the bees from working their way between the cage and comb surface and liberating the queen too soon.



During shipment the part of the screen used to push in the comb is folded down on the back of the cage, and the cage is covered by a light cardboard carton provided with two or three air-holes next to the screen for ventilation.

I am now using a push-in-comb cage with a spool tacked on one side as shown in the illustration. The spool is filled with queen cage candy, and the bees can liberate the queen by eating out the candy instead of tunneling under. I like this better than any other introducing-cage I have tried.

North Topeka, Kans.

### A Suggestion in Regard to the Miller Record System

The new record system, on page 656, Oct. 15, is a good and time-saving method. The author mentions that the apiary has 200 colonies, but provided for only 199. Could he not put ten colonies in his first group by using 0 to 9 inclusive, and make the apiary of 200 colonies complete on 20 cards?

Lititz, Pa.

L. G. SCHULTZ.

[We see no reason why this suggestion should not be practical. The first row would then have ten hives in it, like all of the other rows. The first hive in each row would then be numbered 0, 10, 20, 30, etc.—Ed.]





S. D. Smith, of Auroraville, Wis., who, though nearly 80 years old, cares for 105 colonies of bees.

## OVER A HUNDRED COLONIES CARED FOR BY A MAN NEARLY 80 YEARS OLD

BY S. D. SMITH

The picture shows my apiary of 105 colonies. Although I am 78 years old I do all the work myself. I have extracted about 2000 pounds of honey, have taken off a good deal of comb honey, and have a whole lot to take off yet.

Late in the season, even in September, the bees began swarming, and they did nothing but swarm every day, rain or shine. Sometimes three or four came out together and formed a big cluster. All my queens are clipped, so they have to go back, each bee to its own hive. I keep all of my colonies very strong.

Auroraville, Wis.

## EXPERIENCES OF A FOUL-BROOD INSPECTOR

Some Queer Hives and Frames

BY J. E. CRANE

*Continued from page 727, Nov. 15th issue.*

Nearly all the hives in the town where I began the work of inspection contained Hoffman frames; and the first hive I attempted to open I went at with a rather heavy jack-knife. If I remember rightly, the frames filled the hive from side to side.

"Hold on there! you will break your

knife," said the kind-hearted proprietor. "I have a hive-tool that will help you out."

He brought me a large flat file that was too much worn to be used any longer as a file. I believe the end was somewhat sharpened. With this tool I was able to squeeze the frames together and to loosen one so I could get it out. Then the rest came easier. It took some of the conceit out of me when I found that the proprietor could handle those frames in half the time I could as I had never before tried to remove Hoffman frames from a hive occupied by bees, having always used the Langstroth frame.

The next place I visited I started to use my knife again from sheer force of habit, when I was called on to halt, and the owner of the yard called out, "Sonny, run and get a chisel."

I kept hearing this or something like it until "Sonny, run and get a chisel," became a byword with me.

I found several old flat files in use. One man had one with the handle gone and the handle end bent up in such a way that it fitted the end of the frame and could be used to pry it loose, provided one knew how. The inspector was willing to learn. But the reader will inquire whether there were no follow-boards that could be removed. Yes, I found some, but they were often so glued in that often there was danger of tearing them apart in trying to get them out, and I found it more desirable to crowd the frames together as best I could,





Fig. 1.—One of the out-apiaries of F. A. Ticknor, Austin, Minn., who has been a beekeeper for 55 years.

and to loosen the straightest comb and lift it out.

I soon thought I was going to get along nicely, when I began to find hives where the combs, not content with one frame, would bend off on the one adjoining; and some, perhaps joined three or more frames together. It began to look as though "bee inspection" was not going to prove a snap by any means; but I found that, where I could not get into a frame hive from the top, I could tip it up, break out the bottom-bar of the frame, and take out a brood-comb, and inspect.

The second day I was out I found box hives made of grocery boxes, and frame hives with the covers nailed on top so that

they could not be removed with any tool I had with me. The hives were set in long rows about four inches apart, and in all sorts of ways. On the third day I went home thoroughly tired out and generally disgusted — probably not more so, however, than some of the beekeepers I had met. One of these was quite a character, and afforded me some amusement. I was told before meeting him that he might not let me look his bees over; but I

found him willing provided it cost him nothing. He stood at a respectful and safe distance to watch the inspector examine his ten colonies—seven in frame hives with honey-boards nailed on securely, two in grocery boxes, and one in a hollow log. By cutting away branches of bushes I was able to get at all of them, and my work was quickly done. I assured my friend that his bees were free from disease, and his aparian prospects for the future were bright. He then proceeded to give me an account of his past successes in beekeeping.

"Three years ago," said he, "I was sitting there on the piazza, and I looks up, and I say a *swarm!* Give me my gun! I *shoots 'em!* They come down and lights



Fig. 2.—An out-apiary located in the midst of 160 acres of white clover, the edge of which may be seen in the foreground.



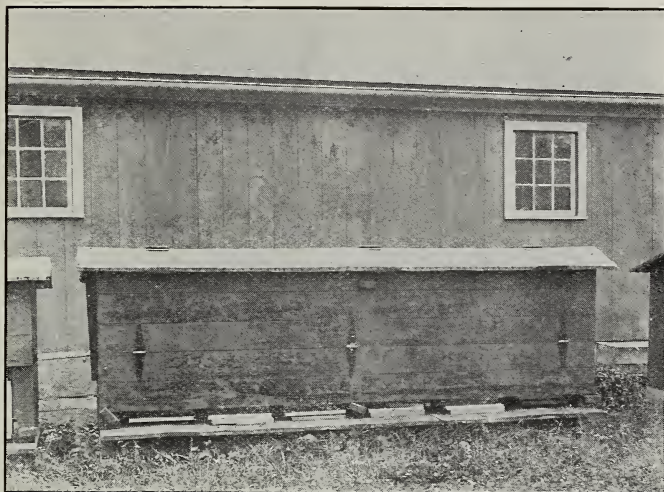


Fig. 1.—P. A. Knoll's winter case for six colonies.

in that tree. I hives them! Three years ago! Ten hives all from one swarm! I no sell very much honey. Honey good on panny cakes. Honey good for colds. Many colds last winter. I come down with one too! Very sick! Most die! I takes a little honey; me better soon. I no sell very much honey. Honey good on panny cakes. Honey good for colds. Three years! ten hives, all from one swarm." I congratulated him on his success, and felt sure he was telling me the truth when he said he sold very little honey, as certainly not more than one of his hives was made so as to take any surplus, and that one very poorly adapted to that purpose.

Speaking of frames, I have found all sorts and kinds — a very much larger proportion of Hoffman than of the Langstroth, however. And then there are styles that I am not wise enough to name. I found one set made two inches wide, top, ends, and bottom-bar, and placed in the brood-box tight together. Evidently, when an attempt to put a colony in such a hive was made, there was no way found for the bees to get inside the frames, so a little wood had been whittled off from the bot-

tom-bars so they could get through.

Another time I found that the proprietor of some twenty old box hives was going to do things right, and was making his own hives, but seemed to have no very clear idea of how things should be. I noticed that his frames were two or two and a half inches wide, and seven-eighths of an inch thick, top, ends, and bottom-bar. These frames were to rest on seven-eighths-inch cleats nailed to the ends of the brood-box.

Another farmer had made his own movable-frame hives, for he said he was a carpenter; but I had to call for a hammer and cold chisel to get into them, although they were of the Langstroth type of frame. It has seemed passing strange that those who have had no experience in beekeeping, or at least in making improved hives, should not first go or send to some factory and get some standard hive for a pattern, and then, if they wish, make their own like it.

I have spoken of the difficulty of getting into hives having Hoffman frames; but this is trifling, compared with what I have experienced in some places where the old style of Langstroth hive and frame was in use, for I could almost always tip up hives

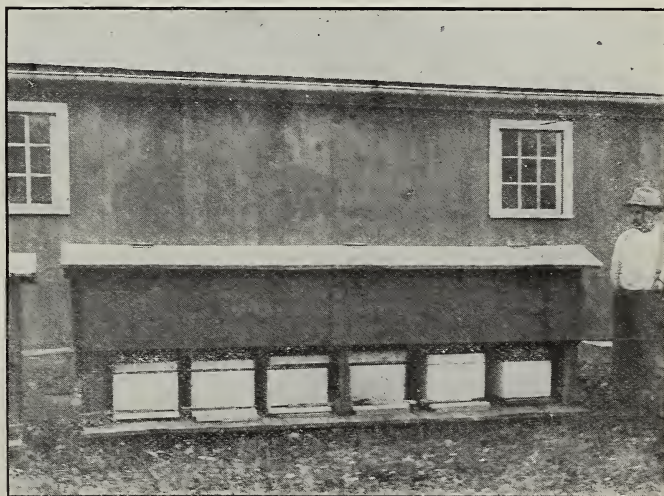


Fig. 3.—The front opened during hot weather.



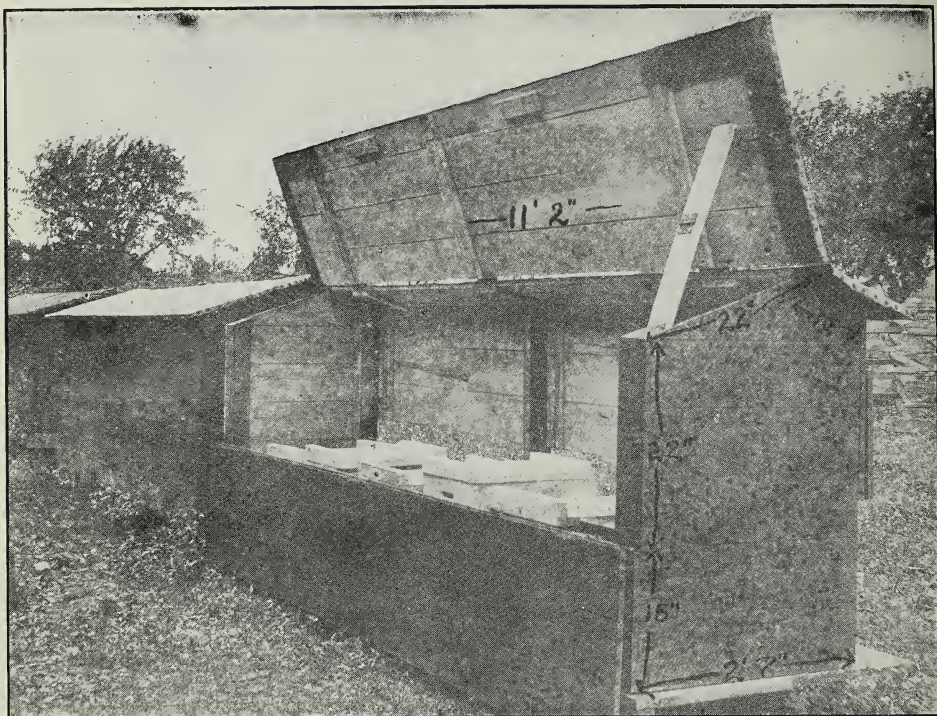


Fig. 2.—The back of the case opened for inspection.

with Hoffman frames and tear off the bottom-bar of the frame and break out a comb. But what can an inspector do with one of those old Langstroth hives when he finds the bottoms nailed fast with ten-penny nails, and the combs built at right angles, and every other one at the top-bar of frames, and he has with him neither cold chisel nor crowbar. There is nothing to do but to look wise and to tell the proprietor that, so far as can be discovered, there is no disease in such hives.

One of the curiosities I discovered on one of my trips was a swarm-catcher which consisted of a one-legged milking-stool with a bail with which to hang it up in nearby bushes, the swarm clustering under the seat and along down the leg. I was assured that it was a great success.

Middlebury, Vt.

*To be continued.*

## 160 ACRES OF WHITE CLOVER

BY F. A. TICKNOR

I am sending two views of one of my outyards, located in the midst of 160 acres of white-clover bloom, as may be seen in the foreground of Fig. 2. A yield of less

than 200 lbs. per colony, spring count, at this yard is uncommon. In Fig. 1, notice the rows of sections of glass ends filled with new white-clover comb honey ready for storage, wrapped in newspapers to make them moth-proof till ready for market.

The scenery here is beautiful, and the atmosphere is laden with the fragrance from the clover. The concrete hive-stands are ideal, giving the wingless queens the opportunity to crawl back until their "cases are called." I have had 55 years of bee-keeping.

Austin, Minn.

## A WINTER CASE HOLDING SIX COLONIES

BY L. LIST

Because of the heavy losses during the last cold season, the subject of successful wintering has acquired a new interest. There seems to be a trend back to outdoor wintering. When a veteran beekeeper like Mr. Holtermann abandons his well-built cellar and returns to that other mode of keeping his bees through the cold season, it is certainly significant. Because of this renewed interest in outdoor wintering, the



accompanying photographs may prove to be of interest.

Mr. P. A. Knoll, of Frankenmuth, Mich., has designed a hive-stand which, though it contains nothing essentially new, yet seems eminently practical for the purpose. The first illustration shows its appearance in winter, when the space between and above the hives is packed with straw.

Fig. 2 shows the stand open for manipulation. The upper half of the back wall is hinged, also two-thirds of the top. The raised top is held in position by a support, hinged at both ends and also in the center. The roof is covered with asphalt roofing paper.

In the spring the packing is removed and the lower half of the front side turned up, as shown in Fig. 3. In this way the stand furnishes an ideal protection against the scorching rays of the summer sun, making extra shade-boards superfluous. It is, therefore, a winter and summer stand combined.

A recent contributor showed how he gradually moves his hives closer together before packing them in the winter boxes. That is unnecessary with the stand shown here. On the approach of winter, straw is, in a very short time, packed between and on top of the hives, and then they are ready for whatever may come. Any one handy with tools will be able to construct

it, or he may have it built by a carpenter. It certainly will prove to be a good investment. Heavy winter losses may give you a severe setback. Thousands of tons of nectar were not gathered this season because the poorly protected bees had been killed or at least badly weakened by the frost. Surely, the time to prepare for a good honey crop is the year before.

Fig. 4 shows several stands side by side, and also several hives in the open. In some of these the combs melted down in the fierce heat of the sun.

The stands are 11 ft. 2 in. long, and hold 6 to 7 hives of the ten-frame size.

Detroit, Mich., Oct. 1.

### A YOUNG ENTHUSIAST IN BEEKEEPING

BY J. F. KIGHT

About 30 years ago I lived in the southern part of this State, and I caught the bee fever from seeing some of A. I. Root's literature. I at once went to work to become a beekeeper, and soon had about 200 colonies. A business proposition called me to the county-seat, so I disposed of my bees; but I have never lost my love for them and their product.

My six-year-old daughter was also inter-



Fig. 4.—The cases in summer furnish adequate protection from the hot sun.





J. F. Kight and his grandson, who is his assistant in the apiary.

ested in my bees, and printed a little letter as follows:

Dear Mr. Root:—My papa has bees that he got from you.  
VIOLA KIGHT.

In a few days she received a letter in reply that she has never forgotten. The little grandson in the enclosed picture is a descendant of the writer of the above letter. He is my helper. If I light the smoker and hand it to him he will do the rest.

Southport, Ind., July 23.

## SWEET CLOVER, BOTH WHITE AND YELLOW

BY FRANK COVERDALE

I am still testing out both alfalfa and the different varieties of sweet clover side by side. The yellow biennial differs somewhat from *Melilotus alba*—more particularly in that it will not grow a cutting of hay the first year, and ripens too early the second season. Those two points prevent me from growing this species to any great extent on our farms. The white kind makes two long seasons of splendid pasture, and will, during the same period, produce three times as much hay. Alba has this season, under test, made three heavy cuttings of hay, while the yellow gave only one cutting and but little seed. Alba will (and has this year) give one cutting and a heavy crop of seed; and, by the way, we are hulling our seed to-day, Sept. 25; and that which was mown for hay, and cut later for seed, made a splen-

did yield of excellent seed, running out so fast that 125 bushels was run out in three-fourths of the day. Next week we shall make hay from seed of alba that was sown April 5, and pastured to the ground till June 1, then cut back on account of rag-weeds, and it is now ready for over one ton of hay per acre. Yellow will not do this; still, I will make more experiments with this variety. I have not yet tried it out at the last plowing of the corn.

I have a strong hope that this clover will prove to be of vital importance as a plow-under crop in time to put the field to corn. Our tall, slender-growing white kind is far superior as a general farm crop; and it is very important that a right type of it be grown upon the farm. This has been our experience. I had inquiry for upward of 2½ carloads of sweet-clover seed during the past year, and received only two small inquiries for the yellow; so I am compelled to believe that the demand must be limited. Our seed germinates as well as any other clover here; but still I have noticed that seed harvested too green has failed to come up as it should. We have learned to let our seed ripen well before cutting.

I am now writing a series of articles for the *Dakota Farmer*, and hope to put the things of importance before the farming community. I am now making some scientific investigations, and will set forth the proofs. Alba is the greatest storer of nitrogen in the soil of any clover that

grows, as well as the greatest producer of humus of all the clover family. There is certainly a future for this clover.

Delmar, Iowa.

[I confess the above seems rather discouraging in regard to the *yellow* sweet clover; but *this* certainly must be true: Not only are there different varieties of the yellow (annual and biennial) but the yellow of both kinds behaves differently in different localities; and, by the way, I might mention that up to date in our Florida home we have not succeeded in growing any kind of sweet clover, even with heavy applications of lime. Alfalfa grows fairly well with heavy fertilization, but it usually dies out during the summer, in consequence, perhaps, of the excessive (warm) rains.

Now to get back to yellow sweet clover. Years ago, while visiting Prof. A. J. Cook, in Michigan, one of the students called our attention to several stalks in a rank field of white sweet clover, and these stalks were all yellow, and just as rank and luxuriant as the white. Furthermore, I mention, at the end of our sweet-clover book, yellow sweet clover higher than my head, growing profusely along the roadside. Last, but not least, our experiment stations this past season had the rankest growth of sweet clover I ever saw, and with the greatest amount of bloom to the square rod, and this was yellow sweet clover. I am well aware that the annual sometimes, and in some localities, blossoms when only a foot high or even less,

and sometimes does not seem to get much taller. We submit a picture of friend Coverdale's field of sweet clover with cattle grazing on it.—A. I. R.]

## FASTENING FOUNDATION WITH MELTED WAX

### An Improvement over the Aikin Plan

BY WM. A. SEDDING

I want to tell how I use the R. C. Aikin device for fastening foundation in frames as described in the June 15th issue, 1911, p. 373, with improvements of my own. I nail one inch from the top a strip of board  $1\frac{1}{2}$  inches wide and the whole length of the board in place of the handle, as shown at B, and bend the two nails at the bottom, which are pretty stout finishing nails, upward to an angle so as to hold the top-bar of the frame when the board is set on the table or work-bench before me like a music-holder.

Along the lower edge of the board is nailed a piece of tin, bent as shown at A. I made this out of a tin rabbet, and it is for the purpose of making a crimp in the foundation before fastening it with hot wax and wedge.

I insert the foundation in the tin groove and flop it over flat on the board. This makes a nice crimp  $\frac{1}{8}$  inch wide. Next I lift it up and drop the crimp over the edge of the tin and put my frame on the nails,

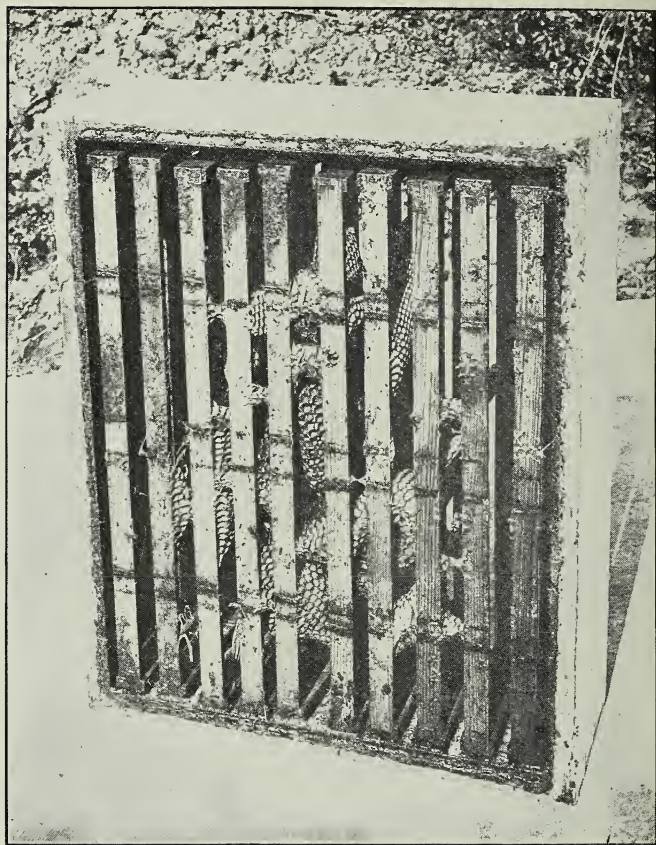


Frank Coverdale's field of sweet clover with cattle grazing on it.



pushing the same up close to the foundation, which will fit snugly to the bar, and then run the wheels over the wires. Then I lift the frame off the board with the foundation imbedded, and run hot wax along the back of the crimp. On the other side, along the edge of the crimp, I use a nail which is kept hot on the coal-oil stove where the wax is heated. Not a drop of wax will run under the foundation, and the work is all done in one operation which does not take longer than Mr. Aiken describes.

In order to put foundation in Madary top-bar frames I use it without the crimp, and put the frame with the cut-out side face down, which will let the foundation slide down into the groove before I let the wires take hold of the foundation. Those Californians who use Madary top-bar frames will find this device very convenient because it turns out as nearly perfect work as can be desired. H. E. Thayer, page 254, April 15, says that the foundation drops out of Madary frames. If he tries this plan he will change his mind, and he will see that he can not pull the foundation out,



What happens if no foundation is used. The shallow frames in this super were accidentally overlooked, and put on the hives without even starters. The bees built the comb crosswise and in fantastic curves to suit themselves.

foundation and nailed down. The foundation should be as soft as it can be handled. Monterey, Cal.

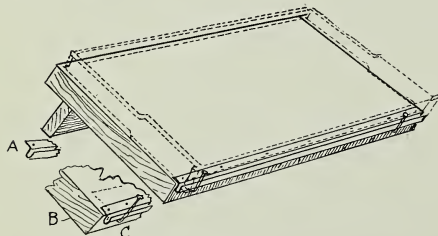
### SOFT SUGAR FOR FEEDING DIRECT

BY ARTHUR C. MILLER

In GLEANINGS for November 1, page 705, in reply to a query by Mr. T. J. Landrum, you do grave injustice, not only to Mr. Landrum, but also to those persons who have urged the use of soft sugar as a bee food. You said:

"It [granulated] has supplanted the 'Coffee A' entirely." Also: "Generally speaking you would be able to use granulated sugar in any place where 'Coffee A' is called for."

This clause is especially misleading. "A" sugar, sometimes called "coffee A," is more properly "Empire A," and is one of the



no matter what the climatic influences are, if he does it right.

The cleat should be nailed in the center first, and then each end jammed against the

fifteen commercial grades of sugar. It is a fine soft sugar with a faint cream tinge; is slightly moist, and holds that moist condition for a long time; but not so with "C" sugar, however, for this latter dries out harsh and mealy, and this is often substituted when the "A" is asked for. The "A" sugar, squeezed up in one's hand, holds its shape, while the "C" crumbles almost as soon as the pressure is removed.

Neither granulated nor "C" sugar will take the place of "A" sugar for the several uses in bee-feeding for which the "A" sugar has been specifically recommended.

The soft "A" sugar, put in a division-board feeder, and hung in beside the brood-nest, will serve to keep up brood-rearing as well as the most painstaking feeding with syrup, and without the danger of any of the food finding its way into the honey later. The bees will lick away at the "A" sugar until it is all gone, while granulated or "C" sugar will be untouched. The soft-sugar-feeding system is the most economical ever devised—not only for stimulative purposes but also for keeping up brood-rearing in special colonies between honey-flows and for queen-mating nuclei. One pound of the "A" sugar will keep one of my little nuclei supplied for the whole season, and there is no need of daily attention as with the syrup, and no danger of robbing, as with the latter, and as with candy made of sugar and honey.

Providence, R. I.

[*Later.*—We wrote to Mr. Miller, saying that the description of his Coffee A did not tally altogether with the Coffee A of early days. He replies.—Ed.]

I am mailing to you a sample of "Empire A" sugar obtained direct from refiners' agent. By him I am informed that this is virtually the same as the true "Coffee A" of our daddies' time. It is sold under several names, or, rather, is used to fill calls for "A," "Coffee A," "Coffee," as well as "Empire A." It costs now at wholesale (25 bbls.) \$4.97 per cwt.

If you will notice the semi-transparent lumps in it you will see how the moisture (syrup) gathers in it. In a large body this settles and leaves the top part drier. This is the only sugar which bees work on readily in its natural condition, *i. e.*, without the addition of honey or water.

Colonies have been wintered on it without anything else, and that was in southern New Hampshire, but I want to know more about its use thus before I advocate it for such purpose. But for economical stimula-

tive feeding and for nuclei, etc., it is unexcelled.

ARTHUR C. MILLER.

Providence, R. I., Nov. 15.

[The sample came duly to hand. The "Coffee A" we used to get in the 70's was whiter, and more like granulated sugar. The new "Coffee A" looks, feels, and tastes like a brown sugar that we get to-day, only it is pale yellow, not brown. We believe it would be an excellent sugar for feeding direct. We shall get some, and try it next season.—Ed.]

## FLOWER POLLINATION

Experimental Proof that Bright Colors are an Advantage to Flowers; Red Coloration and Heat; Path-finders; Flower Fungi; Cross-fertilization versus Self-fertilization

BY JOHN H. LOVELL

The writer, very highly appreciates Mr. Ryan's expression of interest in the article on flower pollination, page 653, Oct. 15. His kindly criticisms manifest an evident desire to learn the actual facts regarding the mutual relations of insects and flowers. Undoubtedly in the past there have been wide differences of opinion regarding the varied phenomena of flower ecology. A few writers have gone to one extreme or the other; but the truth lies here, as Aristotle long ago pointed out to be the case in most discussions, nearer the "mean" or middle course. Personally I should be glad of an expression of opinion by other readers. The questions involved are of more practical importance than many beekeepers seem to suppose. The honeybee is compelled to share the supply of nectar annually produced by flowers with hundreds of other insects. It is certainly not a good business policy in any industry to ignore the competitors for the raw material.

Gray, in his familiar lines, had reference to human (not insect) eyes. It is doubtful if he knew there was such a thing as flower pollination. No matter how frequently a flower was visited by insects, the poet would have considered its charm as wasted if no human being ever beheld them.

Are the bright hues of flowers of advantage in attracting the attention of insects? Let us put the question to Nature. The way to question Nature is by experiment. I repeatedly counted the number of visits made by honeybees to clusters of pear-blossoms during a given interval of time. In one instance eight visits were observed in fifteen minutes. I now removed all the petals and watched the denuded blossoms for the same length of time. There were



either no visits in some cases, or in others only one or two.

Again, during a certain time the number of visits made by honeybees and bumblebees to the flowers of the garden squash were counted. There were a great many visits. The big cup-shaped corollas were then cut off close to the green calyx. The result was the same as with the pear-blossoms—the naked flowers received few or no visits.

The flowers of the common borage were then observed in the same way, and yielded similar results—the denuded flowers were neglected. In one of the experiments with borage there were scattered on the ground many partially withered corollas, and twice a bee was seen to fly down to them. With a lens I examined three of the defoliated blossoms, and in two of them I found eight or nine small drops of nectar, so that a bee alighting on them would have been richly rewarded for its discernment.

These experiments show conclusively that bright-colored petals are an advantage in attracting the visits of bees. It is clear that they were guided by the presence of the petals; and that, when the corollas were absent, they spent no time in seeking for nectar in the defoliated blossoms, but confined their attention to the flowers possessing petals. Note that they flew to the withered corollas lying on the ground, which, of course, were nectarless. We can discover brilliant flowers more easily than we can green or dull-colored ones. It would be strange indeed if this were not the case with the honeybee; and it would seem as though a grave mistake had been made. *A priori* reasoning may be safely used when it is confirmed by experiment; and here the experiments will convince any fair-minded person that the bees saw and were influenced by the bright corollas.

Mr. Ryan showed keen observation in noticing the red coloring on the outside of the apple-blossom. In New England the whole outside of the young blossom of the wood anemone (*Anemone quinquefolia*), which blooms during the last of April, when winds are chill and snow still lingers in the ravines, is often colored purplish red. Red coloring may be observed on many other flower-buds, leaf-buds, and on young leaves in early spring. Because a pigment is useful in some instances in rendering flowers conspicuous, it does not follow that in other cases its role may not be entirely different. It is believed that red coloration is often beneficial to plants in raising their temperature by converting light rays into heat.

That red coloration does actually raise the temperature can be shown by the following experiment. Place some red leaves, the superficial area of which has been measured, in a small glass flask of water. In another flask containing an equal quantity of water put a few green leaves with the same extent of surface as the red leaves. Place a thermometer in each flask; close them and set them in the sunlight. After a time the water in the flask containing the red leaves will be found to be 4 degrees C. above the temperature of the water containing the green leaves. The water in the second flask will also be a little warmer than at first, as the green leaves produce some heat. On a cold day in springtime, when the air is near the freezing-point, an increase of only 4 degrees C. might be a great benefit to a plant. In the same way red styles may aid the growth of the pollen-tubes.

No doubt some confusion has been produced in regard to nectar-guides by some observers supposing that all dots, stripes, and markings were intended for this purpose. Of course the splashes, maculations, marblings, and variegations produced under cultivation by the artificial selection of the florist have no bearing on this question, except to show that markings can be produced easily by selection. But there are many flowers which have yellow spots, or marks of some color, directly over the nectaries; so, too, there are flowers with colored lines leading directly to the nectar; or in long tubular flowers the path the insect should travel is indicated in various ways. I see no reason why these pathfinders may not be helpful in guiding bees to the nectar, on the same principle that a way blazed through the forest by scarifying the trees is helpful to the lumberman. That such marks are sometimes correlated with the nectaries is shown by the fact that in pelargonium, when the nectaries disappear, the nectar-guides also vanish.

No one to-day claims that *all* the markings on flowers are nectar-indicators. Two hues are an advantage in the same flower, since, by contrasting with each other, each is made more conspicuous than when alone. The value of such color contrasts is well shown by the *Compositae*. Here the field daisy has a yellow disk and white rays; the cone flower a dark-brown disk and yellow rays, while the aster has a yellow or brown disk surrounded by blue rays. Red veins in green sepals are probably the result of oxidation and the production of anthocyan as a by-product. Nectar-guides seem no more remarkable than nectar-covers, or the

protection of the nectar from rains by tufts, fringes, and gratings of hairs, or by projecting scales. It is noteworthy that, in some flowers, the wrong path to the nectar is beset with prickles and sharp points. Nocturnal flowers do not have nectar-guides, since they would be invisible in the dark. It is certainly desirable, however, to test the question experimentally.

Irregular flowers have nectar-guides much more frequently than regular flowers. Mr. Ryan thinks that this order should be reversed, and that such marks are more needful to regular forms. In this opinion he seems to be alone. A season's observation in the field should make it clear why regular flowers do not require path-finders. Rotate flowers like the strawberry, five-finger, and carrot have the nectar secreted at the center; where it is largely unprotected, and exposed to all comers. When an insect alights upon the flower the nectar is directly in front of it. As a result, such flowers, if the nectar is abundant, are visited by a great company of miscellaneous insects, as bees, wasps, ants, flies, and beetles. Even the most stupid species readily find the nectar. Many of them are mere pillagers and are of no benefit. I have collected more than 80 different kinds of insects on the prickly sarsaparilla. Recently Dr. Banks, of the Entomological Bureau at Washington, published a list of 382 different species of insects which he had collected on the flowers of *Ceanothus*. Such flowers do not need nectar-guides. The nectar is too easily obtained as it is; they need protection for the nectar. This is afforded in irregular flowers.

Irregular flowers have the nectar deeply concealed where it can be obtained by only a few (sometimes by but one) species of insects. In the island of Madagascar there is an orchid with a nectary 12 inches long, a specimen of which I have seen in bloom in the botanical garden at Cambridge, Mass. There is only one species of moth in that island which has a proboscis long enough to drain up the last drop of nectar. In bizarre-shaped flowers like the turtle's-head, monkey-flower, and bee orchis, the nectar can be found only by the most intelligent insects. Often they are compelled to enter within the corolla through a narrow mouth, or even through closed lips. The turtle's-head, as the name indicates, crudely resembles in form the head of a turtle. The flowers are white, but the lips are red. It is easy to understand that a bumblebee coming to a cluster of flowers would much more quickly find the entrance than if the lips were white.

As a matter of fact, bumblebees do enter the corolla without any delay; but I have seen wasps and flies examining the outside of the corolla for a long time vainly trying to find the nectar. Comparatively few injurious insects ever find their way into irregular flowers. Irregular flowers then require nectar-guides because the nectar is concealed and difficult to find. The fact that they are present in such flowers is certainly a strong argument in favor of nectar-guides.

Mr. Ryan says that the cryptogams (seaweeds, fungi, mossworts, and fernworts) "owe not one tittle to the insect world." On the contrary, there is a family of fungi (the *Phalloideae*) which are called the flower fungi. They display bright colors, and produce a sweet tough mucilage with a nauseous odor. This is eagerly visited by flesh flies, which thus widely disseminate the spores with which the mucilage is filled. Honeybees also sometimes gather the spores of fungi as a substitute for pollen. As a rule, however, the spores of these lowly plants are very effectively distributed by the wind. The spores of seaweed are carried by the water in which they live.

It is freely admitted that insects will gather nectar from green flowers, and honey-dew from green leaves, after these sources of sweet supplies have once been found; but they will not be found as quickly on green-colored substances as they will on bright-colored ones. Let us again appeal to experiment. I accustomed a small number of bees to visit a piece of dull-gray board on which there was a small quantity of honey. For convenience this board will be called the feeder. While the bees were busily at work I laid on the grass of the lawn, three feet from the feeder, some blue floral leaves of the bee larkspur, placed between two glass object-slides, 3 x 1 inch. On the upper glass slide there were a few drops of honey. On a dandelion leaf, also three feet from the feeder, but five feet from the blue floral leaves, honey was also placed. As soon as the honey on the feeder was exhausted the bees began circling in the air looking for more. In a few minutes one bee had found the blue slide; in ten minutes two bees, and in twenty-five minutes five bees; but none had found the honey on the dandelion leaf. At the end of forty minutes one bee had found the honey on the dandelion leaf. In this experiment the advantage was clearly on the side of the conspicuous object. If two flowers were blooming at some distance apart, the one bright-colored and the other



green, the former would be the more likely to be pollinated.

I later repeated this experiment, and performed many others in which the brighter-colored objects received the greater number of visits. From these experiments we conclude that any surface, whether it is bright or dull colored, on which there is nectar or honey, will be freely visited by bees for stores after these liquids have once been discovered; but they will not be discovered as quickly on a surface which does not contrast in hue with its surroundings as on one which does so contrast. In other words, bright-colored flowers have the advantage over green ones.

After a flower has been found by insects the number of visits it receives depends upon the quantity of nectar it contains and not on its color or odor. Many gaudy garden exotics offer neither pollen nor nectar. Honeybees visit them occasionally, as I have observed; but, finding nothing to repay them, they afterward remember their former experience and seldom pay any attention to them.

Mr. Ryan states correctly that the poppy contains no nectar, and apparently thinks that there is, therefore, no reason why it should be visited by insects. The poppy is a pollen flower. Insects visit it for pollen only. The roses are also pollen flowers. During the past summer I was astonished to observe how many bee visitors there were, and how quickly they removed all of the ample supply of pollen from the Japan roses (*Rosa rugosa*) blooming in my garden. There is no need of the roses secreting nectar. The pollen attracts all the visitors required. But bright colors and odors are as valuable to pollen flowers as to nectar flowers.

I see no reason for changing my statement that irregular flowers only "occasionally" revert to the regular form. This is a matter of common observation. The larkspur, violet, white clover, snapdragon, wistaria, sage, linaria, and several orchids are some of the more common flowers which have been known to revert to a regular or wheel-shaped form; but no reader of GLEANINGS has ever seen these flowers often become regular. Mr. Ryan appeals to Mendel's law; and after referring to Mendel's crosses of the different varieties of the garden pea, he adds: "Here, then, the irregular form *unmistakably* (italics Mr. Ryan's) reverted to ancestral stages and produced regular forms" (quoted from my paper in GLEANINGS, Jan. 15, p. 54). Mr. Ryan is mistaken; for in not a single experiment of Mendel's in crossing the

varieties of the garden pea did the flowers lose their papilionaceous or irregular form and become regular. I was so astonished at Mr. Ryan's assertion, that I wrote to one of the first authorities on genetics in America and Europe, and inquired if he knew of any facts on which such a statement could be based. He replied: "I have read carefully Mendel's original paper giving the account of his work on varieties of the garden pea, and it contains no mention whatever of the flowers having lost their papilionaceous character." And he adds that he never before heard such a thing intimated.

Cross-fertilization versus self-fertilization is a most interesting question. I can not agree that Darwin's dictum, that Nature abhors *perpetual* self-fertilization, has been "upset." It will be noticed that I emphasize *perpetual*. Let us inquire first whether cross-fertilization is beneficial or not. Darwin showed conclusively that it is. The offspring of crossing were larger in size, grew more vigorously, bloomed a little earlier, and yielded more seed. Since then we find Dr. Fletcher saying in the A B C of Bee Culture that endless observations have confirmed the accuracy of Darwin's law. The evil effects of constant interbreeding are instinctively recognized, even by barbarous races.

The latest authoritative word on this topic is given by the President of the Carnegie Institute of Washington in his annual report. He says: "Another investigation continued during the year, which involves prime utilitarian application, is that of Dr. Shull on the effects of self-fertilization in maize, or Indian corn. His earlier conclusions, published in 1908, have been confirmed by his later studies. A striking result from the latter is that, other conditions being the same, the *yield of cross-fertilized plants proved fifty per cent greater than that of self-fertilized plants*" (italics ours). Farmers! fruit-growers! Cross-fertilization in plants is not only of benefit to the plants, but it is of financial value to you. A knowledge of this great principle will put money in your pockets.

Look over the plant world and see how wide is the provision for cross-fertilization. All the cone trees are cross-fertilized. In all the species the eggs and sperms are produced in different cones; and where both kinds of cones occur on the same tree, the fruiting cones are in a position where they are not likely to receive the pollen from the staminate ones. How well the cone trees have succeeded! How vast are our forests of pine, of fir, of spruce, and larch!

Most of the grasses and sedges, which in myriads so beautifully clothe the earth, are cross-pollinated. Many of our deciduous trees, like the birch, the poplar, and the willow, depend wholly upon inter-crossing. A multitude of herbaceous plants secure cross-fertilization by the most ingenious contrivances, and there are very few which do not secure an occasional cross.

But if cross-fertilization is so valuable, it may be asked, "Why do so many plants retain the power of self-fertilization?" The reason, it seems to me, is obvious. If a species becomes rare, it is likely to disappear unless it can fertilize itself. Species represented by only a few individual plants, widely scattered, may linger along in favorable locations indefinitely, if they can fertilize themselves and thus produce seed. It is better for a species to be self-fertilized than to perish. There are hundreds of rare species which do thus prolong their existence. It is clear that, if a plant which has lost the power of self-fertilization, becomes isolated, it will be unable to produce seed, and, consequently, will leave no offspring. It is desirable, therefore, for plants to retain the power of self-fertilization against an emergency.

Plants that are regularly self-fertilized have usually small flowers, and are adapted to special conditions. They are stationary or retrogressive forms which are no longer advancing in development. For species which are evolving rapidly, inter-crossing is a necessity. Nature may not abhor self-fertilization, but she does abhor *perpetual* self-fertilization.

There are some exceptional cases where plants rely on vegetative multiplication; and there are flowers, as some species of *Taraxicum* and *Hieracium*, which produce seed without pollination or fertilization; but it would be folly to argue that, therefore, sexual reproduction is of no value. It would be equally a mistake to condemn cross-fertilization because there are some species which are self-fertilized. In deciding as to the application of a great natural law we must take a broad view. I was once present in the United States Supreme Court when one of the justices, in speaking of the application of certain law relating to shipping, said in effect: "We must look, not at one point, but all along the shore, including the Atlantic, the Gulf, and Pacific seaboard, and the shores of the Great Lakes." So should we study a great natural law.

From the list of prismatic colors, indigo was intentionally omitted. The term is omitted from many modern text-books on

color. Prang in his "Standard of Color" does not even mention it. Rood in his "Text-book of Color," says, "The term indigo, originally introduced by Newton, has been entirely rejected in this work." There are objections to the term, and Prang covers the ground by using combinations of the terms blue and violet.

It has been necessary to reply to Mr. Ryan very briefly; but the above statements can be substantiated by a great amount of additional data. We hope other beekeepers will express an opinion. The question really resolves itself into this: Are the eyes of bees good organs of vision? It seems impossible that any man can be a beekeeper for half a lifetime, or for even half a dozen years, without forming an opinion on this matter and being able to give a reason for his belief. There are some phases of beekeeping on which it is difficult to say anything new; but, so far as we can recall, very few have given their views on the vision of bees. The editor of GLEANINGS believes that they have well-developed sense of sight. So does Buttel-Reepen, who suggests that, if you doubt it, you stand about ten steps from the entrance to the hive on a morning during buckwheat harvest, when you will have painful proof of their ability to see. Mr. Dadant thinks that bees "can see very far." Notthafft and Plateau, on the contrary, believe that bees are exceedingly short-sighted. What do you think? There must be scores of apiarists who can give some facts bearing on this question. The department editors of GLEANINGS, with their vast experience, must have very definite ideas on bee vision. The question is surely of great importance to all, and especially to queen-breeders. Will you not let us hear from you? We are after the facts—the truth. *Veritas vos liberabit.*

Waldoboro, Maine.

## FENCES FOR WINTER PROTECTION

BY R. F. HOLTERMANN

It was with a good deal of interest that I made a study of the special number on wintering, Sept. 1. Such numbers concentrate ideas and writings upon a specified subject, and are convenient for reference.

The wintering of bees is a subject which has received a good deal of attention, and upon which, through pen and tongue, and (may I add?) practical demonstrations, many ideas have been advanced. In this way decided progress has been made; and if we were always able to do what should be done, beekeeping would be on a different



footing. I say *leekeeping*, for I do not confine its effects to the wintering problem alone. Bees, if put in proper shape for winter, build up better in the spring and give a better honey crop. This side of the question has not received the attention it merits.

There is a long-distance view—a vision, if you will—which I have had for many years, which applies to the beekeeping industry in general, and the correctness of it does not reflect any very great credit upon beekeepers; but this view will remain true as long as bees are largely in the hands of those having other business interests.

For many years I have been able to foresee heavy winter losses under certain conditions. One condition under which these losses occur is failure of the late honey-flow in sections where a flow is usual, or where there is any quantity of honey-dew in the brood-chamber, or where the entire apicultural season has been unfavorable. Then there is the constant selection of the most unfit, which often results from our modern methods, when the colony is headed by a queen which keeps the brood-chamber well filled with brood to the exclusion of stores, in such a condition that starvation is likely to occur before spring. Such a forecast should not be possible in beekeeping; but it is true in Canada and the northerly if not the middle States. Human nature remains much the same. A "sufficient unto the day is the evil thereof" policy has ruined many.

#### "OPEN" FENCES NOT DESIRABLE.

In the discussion about fences, I was especially interested. I have five such fences, each covering ground space from 40 to 50 ft. square. These fences answer a purpose entirely different from a railroad fence. My fences are 8 ft. high, and have for their purpose the keeping of cold winds from the bees during autumn, winter, and spring, and, incidentally (and a very desirable feature), keeping the snow from drifting about the bees. The only object a railroad fence has is to prevent large snowdrifts on a railway track. With a fence built so as to leave openings between the upright boards, surely the greatest amount of *shelter* is not obtained. By an open fence the railway company secures a distribution of the snow; a portion of the snow rests on one side of the fence, and the rest will drift through and over the fence, and thus the snow is distributed over a larger area. In parts of the country where snowdrifts are very prevalent I have seen two such fences on each side of the track in order that the second fence might catch what the first did not. The wind and tem-

perature are of no interest in this matter; but the snowdrift is all-important. I am so particular to shelter the bees from this wind that I consider it quite injurious to the bees to have even an opening under the fence. In a couple of instances where these existed, owing to faulty construction, I have taken care to have them stopped up. On a bitterly cold, windy day, would a beekeeper take shelter in a place protected by a tight board fence, or in one with an opening between the boards, such as is advocated by some writers? I know where I would look for shelter, and I feel so sure that every one else would know that I shall not undertake to answer the question.

With three winters' experience with the tight-board fence in three apiaries, the snow drifted last winter for the first time inside the fences; and the reason for this was because we had two very heavy snowstorms with high winds; but even in this case the drifts which were next to the fences could have been thrown out through the open spaces which the loose boards in the fence afford. It must be remembered that in most storms the wind and snow will blow right across a space enclosed in a 40 or 50 ft. area enclosed by a fence 8 ft. high. The space inside of the fence is not a vacuum, and the tendency to a downward pressure is largely overcome by the air in the bee-yard.

In conclusion let me say I am quite satisfied with tight board fence. I have put up two more such fences this autumn. It is well to get the bee-yard well shaded with trees in summer, as this shade reduces the tendency to swarm, and in the winter the branches of the trees lessen the effect of the wind.

Brantford, Ontario, Canada.

### SOME EXPERIENCES IN SHIPPING BEES

#### The Importance of Giving Bees Water on the Way

BY G. C. MATTHEWS

In the spring of 1911 I went to Colorado to ship several cars of bees to Idaho Falls for a company in Ogden, Utah. Some of the bees were already bought, among which were my own sadly depleted apiaries which another man had been running. The season of 1910 was a hopeless failure, and what bees had not starved were in a sad condition in March, 1911.

At such an early date, foul brood, though present, shows very little, and one must be exceedingly careful to find every part of it. In addition, the ordinary hives need lots of

fixing before they can be shipped; and I was fortunately delayed in shipping until April. I say "fortunately," because the bees were thus given a chance to rear some brood, and become nearly normal. Had they been left in Colorado three weeks longer it would have been more fortunate, for bees should never be shipped when there are few young bees in the hives.

Two cars of the bees—one from Loveland, shipped April 1, one from Sterling, shipped two weeks later—were sent with a comb-honey super on top of each, screened. The two from Longmont had narrow screen frames. All of them had water dashed into the outside combs, which were invariably empty. All were loaded in tiers packed tight in the car, and with two-by-twos between. In short, they were loaded alike, I think, though I did not load, nor have any thing to do with the Longmont cars. But those with the deep screens reached Idaho with much less loss, and all of the living colonies were in far better shape. Was the extra clustering-space on top the cause? It appears so, yet weather may have cut some figure.

In June I loaded another car in Ogden. These were full colonies that had been swarming; but a dearth of honey had stopped it; and they were fed sugar syrup before screening. They too were covered with comb-honey supers—the strongest with two, and in addition the entrances were screened. They were also watered in the same way, and loaded in the day time as the others had been. These bees were kept closed in for three days and nights in all, *during the swarming season*, and were hauled upon hay-racks and beet-racks, and yet only one unusually strong colony smothered, and few bees in any hive were lost. I forgot to mention that the bees were watered at unloading also. Did the large space over the frames, plus the water, insure the success of this shipment? I think so.

During the spring of 1912 I helped to ship five cars of nuclei from California to Utah and Idaho. All of these were weak compared with full colonies; but they were shut in single-story ten-frame hives on six frames, with the screen down on top of the frames, and they were not watered at all. The bees could cluster at the side, but not over the frames. I saw only one car unloaded, and fully half the bees were lost in each hive, while the owner says he usually loses a great many old bees.

Now, this particular car was held up during the heat of the day twice during the trip, to which cause the owner attributed

the loss. The weather also in Nevada was hot when we passed through. But the car shipped from Ogden to Idaho Falls in June, 1911, stood on the tracks through all the heat of the day in Idaho Falls on the second day, though the weather was not so hot. But the bees were three times as strong, and hence hotter.

The difference, as it appears to me, lay not in the weather nor the motion, nor in the extra time of being shut in (the California bees were closed in for five days), but in watering and the clustering-space. If bees can get above the brood they will not smother it; and will not eat it if they have water.

Now just a word about how to water. If one has extra dry combs, water put in these is best; but some use cans of excelsior, tacked in the sides of the hive, quite successfully. I presume that it is best of all to water *en route* with a spray; but it is not necessary for nuclei if there is water in the hive.

If bees are watered at unloading they are not nearly so liable to swarm out when opened, and be lost. A dash of water in each hive suffices. When they are shut in I should say always give water at every opportunity.

Carneyville, Wyo., Nov. 5.

[Our own experience has shown the great importance of giving water on the route. We are convinced that, when it is supplied to them often enough, they will not destroy their brood, and the chances of the bees getting through in good order are immensely improved.

If ordinary strong colonies are shipped, it is also important to have a clustering-space over the top of the combs. With ordinary weak colonies, such space, according to our experience, is not necessary, but such bees must be supplied with plenty of water just the same.—ED.]

#### Bee-stings an Eye-opener

The following item was clipped from the San Francisco *Call* of yesterday, Oct. 5. Like lots of others I've had my eyes opened by being stung, but not by bees. Bee-stings usually act on me for a day or two the other way.

Oakland, Cal., Oct. 6. ' GEO. MALCOMB.

A PLACERVILLE APIARIST IS SAVED A VISIT TO A SPECIALIST.

CHICO, Oct. 4.—While changing a swarm of bees from one hive to another, George Bailey, who lives near Placerville, and makes a living selling honey, but who has been almost blind for some time because of some ailment of his eyes, was stung on the face and eyelids by several of the bees. Bailey intended to go to Sacramento today to consult a specialist with a view of having his sight restored; but the bees did the work that he intended the specialist should try to do. The effect of the stings has been to restore his sight.



## Heads of Grain from Different Fields

### Do Bees Lose Their Stings After Using Them on Other Bees?

Dr. Miller's Straw, page 540, Sept. 1, was a surprise to me. On many occasions I have noticed that it is a rule that has few exceptions that bees do not lose their stings when using them on workers, queen, or drones.

The A B C book in speaking of bees living after having lost the sting, says, "The author has seen a colony so infuriated that the bees stung every thing in sight—fence-posts, etc." They surely did not lose the stings in a board. Cotton gloves coated give full protection. Now for the exception.

I released a queen too soon last week, and she was soon stung in the thorax. The bee that stung her lost its sting. I recovered the queen at once and removed the sting, and caged her again with some of her bees. The front leg on the side where she was stung is paralyzed; otherwise she seems all right.

I once saw a very strong colony on twenty combs (three of which were drone) sting hundreds, probably thousands, of their drones to death—no doubt of it. It was 5 P. M. on a hot day some days after the flow had stopped, when these bees attacked the drones. The drones would fly away only to return. After a while I noticed that many a drone had a worker clinging to it when leaving, and those would soon fall to the ground, where the drone often escaped. Often both the worker and the drone flew away. Many times, however, the drone was stung. The worker would then release the drone, turning about and pulling until the sting came out. The worker then returned to the hive; but the drone so stung never flew again. I did not notice a sting being lost. I think a bee that "curls up," as Mr. Holmes says, p. 660, Oct. 15, has been stung in the abdomen. At least the abdomen is very frequently stung. This is my personal observation—not guess-work nor hearsay.

Tola, Kansas, October 22.

P. E. WAUGH.

[Our correspondent, as well as the one who follows, has given some interesting facts to show that bees may use their stings in a wholesale way to kill both drones and workers without losing either their lives or their stings. We certainly have seen cases where the sting of a worker was left in the thorax of a queen. We can not recall that we have ever found a worker or a drone with a sting lodged in its side. We would conclude that bees do not lose their stings when they use them *against each other*. It is probably not necessary that they should; but nature has evidently designed that, when they attack men or animals, their weapon shall lodge in the wound in order that its effect may be much more severe. The mere prick of a sting probably would not have any serious effect on any man or animal; but when the sting is left in the wound to force out all the poison in the poison bag into its victim the effect is tenfold greater.]

In this connection it is proper to observe that some other insects do not have barbs to their stings. For instance, the ordinary yellow-jacket can sting several times—or at least it has been reported that it will, while a honeybee stings only once. If any one else has any further facts to corroborate, we should be glad to hear from him.—Ed.]

### No Stings Found in Bees Stung to Death

Under Dr. Miller's Stray Straws, p. 540, Sept. 1, "Do bees sting drones to death?" the editor says, "We do not believe that nature has designed that worker bees shall sacrifice themselves, etc." I take it for granted that a worker would make the same sacrifice in stinging a worker that it would in sting-

ing a drone. But does it kill a worker when it stings either a drone or a worker?

A few days after I read the Straw I noticed a small swarm out (probably with a virgin that ran off and left them). Anyhow, the swarm came back, and went in with a weak colony that had a three-months-old queen. Knowing that this particular swarm would not be likely to supersede, I looked for a fight. Well, there was a fight sure enough, and I did not try to stop it. I wanted to see how many stings I could find in the dead bees. The next morning I looked the pile over (about a quart), and there was nothing to indicate that they had been stung to death. So far as I could judge, the swarm they went in with had not lost any bees. I'm from Missouri, and want to be shown.

Redlands, Cal., Oct. 22.

M. J. MEEKER.

### Was the Clipped Queen Killed Because She was Unable to Accompany the Swarm?

Does clipping the queen ever lead to trouble when her bees swarm? The following incident would seem to indicate that it may under some conditions. During the past season I was forced to be away from home several days each week; unfortunately, the rest of the family were also absent. I made the best arrangement I could to keep the bees from swarming, giving the queens plenty of room, and, in fact, according to Mr. Dundas Todd, our foul-brood inspector, rather overdoing it. Queens were all clipped, and I thought every thing was all right. My hives were arranged in pairs, with about six-foot intervals between the pairs—just a nice space for a newly hatched litter of chickens; and so, not knowing what else to do (the garden is small, and I had about thirty hives scattered about), I placed the chickens, with the old hen, in a coop immediately in front of two hives of gentle black bees, and left for the day with a peaceful mind.

About the middle of the day a lady visitor found the chickens all dead, and the old hen in bad shape. Also quite a number of dead bees around, and on trying to rescue the hen the lady herself attracted some very pointed attention, and was finally forced to vacate in favor of the bees, which, I understand, were flying in greater numbers than usual, and were very cross. I found every thing quite normal in the evening, and could not account for the accident.

I afterward found a young unclipped queen in one of these hives, and came to the conclusion that the bees must have swarmed out, and, finding that the queen did not accompany them, returned and killed her, and incidentally the hen and chickens, after which they raised another queen.

FRED E. WHITE.

North Vancouver, B. C., June 10.

[Your solution is probably the correct one; but it is possible that the chickens themselves killed the queen, which they might have done if they had acquired a liking for bees, and if a swarm had issued leaving the clipped queen crawling around in the grass.—Ed.]

### Poison Not Found in the Honey when Fruit-blossoms are Sprayed

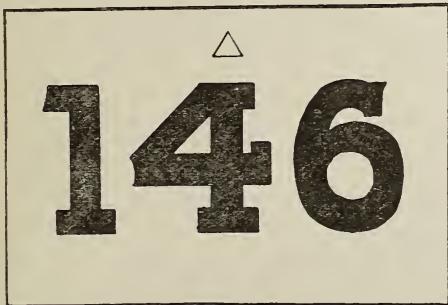
On p. 559, June 15, I see the question, "Is spraying of fruit-trees while in bloom injurious to either bees or brood?" While at first thought we might be led to believe that the bees in question were killed by the spraying, I am of the opinion that this can not be; neither do I think that the brood is in any sense injured by the very small amount of arsenic that is usually found in the various sprays used. I have used the Bordeaux mixture and the arsenate of lead very lib-

erally on my trees at blooming time, and have noticed no bad results to either bees or brood. I also analyzed the honey gathered from the trees for arsenic, and found no trace of it by the delicate test made use of by our profession. I am of the opinion the bees referred to died from other causes.

Anderson, Ind., Aug. 1. BENJ. H. COOK, M.D.

### Tin Hive Numbers Held by Nail to Hive Body

I noticed in GLEANINGS a desire for ideas on hive numbers. I submit a sample of hive number showing what we use and like. A triangular hole enables the plate to be hung by a shingle nail driven into the hive body so as to project  $\frac{1}{4}$  inch. This size,  $2\frac{3}{4} \times 4$ , is cut from a fair quality of tin



with the minimum waste. The size is also very convenient for the pocket. The sharp angle at the top of the notch prevents the number from blowing off the nail. I don't think much of your cardboard idea.

Palo Alto, Cal.

H. STILLSON.

### How to Avoid Foam on Top of Bottled Honey

Kindly advise me how to avoid the foaming on top of extracted honey in jars. In some of the jars it forms, and in others it does not. The honey is from white clover, was strained through cheesecloth. It was two-thirds capped before it was extracted.

Brooklyn, N. Y.

A. KIRSCH.

[Unripe honey always gives more trouble in this way than that which is thoroughly ripened; but if yours was two-thirds capped before it was extracted we hardly think that this was your trouble.]

It is well to strain the honey through as thick a cloth as it will run through when hot, as this removes a good deal of the air. Then allow it to stand so that the air-bubbles may rise to the top as much as possible. Draw it off at the bottom of the tank, and be careful to avoid stirring or shaking the honey in the bottles, so as not to get the air mixed in with the honey.—ED.]

### Chickens that Did Not Eat Bees

To prove an alibi for those chickens, p. 637, Oct. 1, I will give an instance of my chickens, which have had a good opportunity to eat bees but which do not show evidence of such a depraved appetite.

I live in a semi-arid location, away from any irrigated land except my lawn, about 30 feet square, sown to white clover. I keep about 20 chickens, and have 9 stands of bees. The lawn is the only source of green food for the chickens, and there are very few grasshoppers and such insects for the chickens to catch, so one would suppose that, when the bees and chickens were busy at the clover the chickens would eat bees as well as clover.

My bees were blacks, and I requested them with Italians, which caused me to watch them while

working on the clover to see how rapidly the change from blacks to Italians was coming, and also what the conduct of the chickens toward them was, and I never found them guilty. Later in the season, when watermelons were ripe, I cut the small ones in two and set them where the hens could eat them. The bees found them first, and got busy, and even fought among themselves for room on those melons, which were covered over with bees when "Brigham Young" and his family would arrive on the scene to look after the seeds and pick the melons up a bit to make some juicy spots for the bees to work on. There was a fine opportunity for bee-eating, as the bees were too busy to make room for the hens; and you could imagine Brigham instructing his wives to be careful not to touch dad's bees.

Bishop, Cal.

G. M. HUNTINGTON.

[It is quite evident that chickens, unless they acquire the habit, do not care to eat bees. They probably learn to eat them by picking up dead bees first, and then later becoming so bold as to tackle the live ones.—ED.]

### Wintering in an Upstairs Room Not Advisable

I wish to ask you how it would do to winter four stands of bees in an empty house in one room or one in each of four rooms, with the windows closed tight or partly open to allow the bees to fly out and in during nice days in fall and spring.

Bremen, Ohio.

J. C. NAGINEY.

[As a general proposition, it is not advisable to try to winter bees in a building above ground unless the entrances are so arranged that the bees can fly when the weather is suitable. If you remove the window of the room in which you locate these four colonies we do not know that there will be any objection to your wintering them in the manner you suggest. But it will be best to place the hives as close as possible to the window so that the bees, when flying in, will be more apt to go into their own hive. You will probably find, however, that there will be some "drifting"—that is, one or two of the colonies may attract the larger number of flying bees on warm days, so that the others will be weakened.]

If the temperature of the cellar under the house could be kept nearly uniform—between 40 and 50 degrees—we think you would stand a better show of bringing the colonies through in good shape if you place them there rather than in the upper room; then they would not need any opening to the outside for flight; for where the temperature does not vary, the bees may be confined until spring.—ED.]

### Four Tons of Honey Sold at 12 Cts. a Pound

My apiary is the most northern of any in Canada—at least, I think, in the province of Quebec. I have 140 colonies, and we have had an unusually good year for clear honey. I expect four tons. I have sold at 12 cents per pound for the last three years. I have no trouble in getting that price. What I have left after my home trade I sell to Ottawa customers.

Yarm, Quebec.

ROB'T MCJANET.

### Bees Swarm in October

I noticed the statement by S. H. Fuller, Helena, Ark., Oct. 15, p. 668, about the bees swarming the 8th of August. I can go him some better, for my bees have swarmed twice since then—October 8 and again on the 9th. My bees are still storing honey in the supers. I had to put on six supers with partly filled sections last week. This is the latest I have ever known them to store any honey; but every thing is late on account of the overflow last spring.

Marked Tree, Ark., Oct. 21. R. C. GRAHAM.



### A Divided Brood-chamber for Cell-building

I desire to know about the divided brood-chamber for the rearing of queens as given in the "Modern Queen-rearing." The answer, I presume, is obvious enough, and yet perhaps my reasoning would be at fault. In the divided-brood-chamber method, are the bees allowed to come directly from the field into the center compartment—that compartment in which the queen-cells are being built, and from which the queen is excluded by the use of perforated zinc? I should also like to know why it wouldn't be just as well to have these three frames at the side of the hive instead of in the center, thereby eliminating the necessity of moving the queen first from one to the other compartment. I take it that, perhaps, this would be more liable to cause the cells to become chilled; and possibly being to one side; and, therefore, not breaking up their home so much, would cause them to be indifferent in their attention to the cells. I do not think I have misunderstood the plan, and I think I can see sufficient reason for the cells being in the center of the chamber, but wondered what experience had shown.

Salisbury, Vt.

FRANCIS J. PETERSON.

[Referring to the divided brood-chamber, on page 11 of "Modern Queen-rearing," we may say that the bees from the field have access to all compartments of the hive. Ordinarily the bees would store most of the honey around the brood where the queen was, neglecting the other side from which she is temporarily absent. Then when she is transferred over to the other side the bees will begin storing their honey where she was, and where the eggs are being laid. As a matter of fact, the workers are perfectly free to go to any portion of the hive; but the queen is confined to one side or the other.]

It is much better to have the cell-building right in the center of the hive, because it must be in the warmest part. You have very largely anticipated the reason for this in supposing that the cell-building should be in the center of the hive on account of the extra protection and warmth. Then there is a further reason: If the hive were divided into two parts—one part of which was only one-third as large as the other part, and the cell-building were put on one side, the colony in the larger part would have more of the colony spirit; and as the queen would have access to all of the six combs, there would not be the same stimulus to complete the cells in the other section of the hive where there were only three frames. By dividing the hive into three equal parts, the portion where the queen is is so small that two-thirds of the hive is actually queenless; while with the other plan referred to, one-third of the hive would be queenless while the other portion would be supplied with a queen, and there would be brood in probably five or six combs. This condition would take away largely the desire to in the other portion that is separated off by means of perforated zinc.—Ed.]

### Fermentation of Comb Honey Due to Continued Wet Weather

On page 705, Nov. 1, you ask some one to throw light on the question of comb honey, as asked by Mr. S. A. Fuller, Helena, Ark. This is the simplest thing in the world to diagnose. The honey was gathered with a very great surplus of water, and the bees in their rush failed to guess just when to seal it, and did it too soon. The result was fermentation. To make the matter more clear I will say that colonies short of bees during wet seasons when honey is coming in rapidly are extremely bad about sealing honey that contains too much water. I have had honey ferment in the hives so badly that actually the fermenting gases would burst the cells and cause the honey to run out. I have many times uncapped

honey that would be so badly fermented or soured that the honey in the cells would not be much more than a mass of bubbles. In practically all cases where this kind of fermentation was manifest, it was in weak colonies during wet seasons at a time when honey was coming in rapidly. A heavy rain will not cause this condition. It comes at a time when continued rains occur for days, and produce a very vigorous growth of vegetation, and when the nights are dewy. I have noticed that very great fermentation is confined to the colonies short of bees, and the fermentation decreases as the bees grow stronger, until none is noticeable in colonies that were normal or above normal. I have not had honey even taste of fermentation for four years, which is due to the dry weather conditions prevailing in Texas. I have had honey so badly affected in the combs in the hives that it had to be thrown away. It was not fit to eat and not fit to give the bees.

Bartlett, Texas.

H. P. ROBINSON.

### Laying Workers; How to Get Rid of Them

On p. 523, Aug. 15, the editor advises Mr. F. B. Fenner to break up a hive and distribute the combs among other hives in order to get rid of laying workers. I have not the slightest trouble in dealing with these pests, and my remedy is as old as the hills. If I find laying workers I take the whole hive fifty yards away, out of view of the old stand; dump all the bees on the ground and leave them there. Then I take the empty hive and bare combs, and put them back on the old stand. I give the bees two frames of young brood, and the next day a cell or a queen if I have one. I have always been successful when doing this, for the laying workers do not find their way back.

MAJOR SHALLARD.

S. Woodburn, N. S. Wales, Sept. 9.

[It is true that this is an old treatment for the trouble; but it is a lot of work, and one or two have reported that it failed to work.—Ed.]

### Comb-building Again on an Introducing-cage

I read with pleasure the article by Mr. Bigelow, Oct. 15, page 657. I had a similar experience. I set my queen-cage between two frames; and upon going there a few days after, I found a piece of comb with eggs. I had a queenless nucleus with nothing to raise a queen from, so I took the comb from the introducing-cage, and grafted it to the side of the frame. I went to that nucleus about one month later, and found brood in all stages, with a nice young queen which had been reared from this piece of comb. I think that beekeepers had better leave all cages in for awhile, and see what next will happen.

Webster Groves, Mo.

W. T. SALES.

### Denies that the Honey Soured

In your issue of May 1, 1912, p. 265, you published a letter for me in which I was criticising Mr. I. Hopkins' method of extracting honey before being ripe, and ripening it by artificial means outside of the hive. In the above-mentioned letter I stated that Mr. Hopkins while in charge of the apiary in connection with our exhibition had some honey exhibited which soured. Mr. Hopkins has sent me a lawyer's letter in which he denies that there was ever any honey soured, and asks me to withdraw, or proceedings will be taken against me. As the beekeeper who told me he saw the honey, and noticed that it had gone sour, and of its sudden removal, is away in England at present, and is not expected back until December, I replied that all I could do was to write to GLEANINGS and state that Mr. Hopkins denies it.

A. IRELAND.

24 Andover St., Merivale, N. Z., Oct. 3.

# Our Homes

A. I. ROOT

Wherefore, seeing we also are compassed about with so great a cloud of witnesses, let us lay aside every weight, and the sin which doth so easily beset us, and let us run with patience the race that is set before us.—HEB. 12:1.

Our good friend T. B. Terry, in a recent number of the *Practical Farmer*, gave the suggestion of the above text, which has a double or treble application. Read it, and see what you think of it:

## CARRYING A SACK OF FLOUR ALL DAY.

How would you like to have a quarter-barrel sack of flour, 49 pounds, tied on your back and have to carry it around all day long? Do you think you could stand it? Certainly you would not feel like doing much else. But don't you know this is what a person is practically doing who weighs 50 pounds more than he or she ought to? They are carrying around 50 pounds of dead weight unnecessarily. Some people high in office may carry more dead weight than this, even up to half a barrel of flour. Isn't this a pretty good reason why they ought not to be expected to accomplish much more. Twenty years ago the writer weighed about 30 pounds more than he ought to. His wife weighed fully 50 pounds too much. One of the gains from more simple ways of living has been the reducing of our bodies to normal size. Wife weighs plenty enough now, and still she has lost fully the weight of a quarter-barrel of flour. I weigh enough, 160; ribs are well covered, smooth, and plump, and still I have got rid of 30 extra pounds. I feel truly sorry for all people who weigh from 25 to 100 pounds more than they should, and would like to help them. They are expending part of their energy carrying around dead weight that is of no earthly use to them, and which may cause death prematurely. All that is necessary to reduce one's weight is to eat a little less than the body needs to run itself. Then it has to draw on the surplus stored-up fat for fuel. Plain, simple food only helps one about doing this. Very slowly the weight can be reduced with entire safety. But it takes will power, of course. Every pound of surplus fat laid on the body first went into the mouth as surplus food, extra beyond the amount needed to run the body well at normal weight. The body should be plump, well covered with flesh, but no more, to get most out of life.

Now, this is really a vital matter. I have good kind friends, and so have you; they are all around us, who are carrying such a burden as he describes, every day of their lives. I think it is true that these men or women who weigh 200 lbs. or more have more strength and muscle than some of us lighter ones, or else they would not be able to do any kind of work profitably, so handicapped with excessive flesh. This matter has already received much thought, and has caused a good deal of worry. We have proof of it in the anti-fat remedies and drugs advertised; and it has often been suggested that we cut down this superfluity of flesh by a more abstemious diet. I have talked with several friends in regard to the matter, and they claimed that keeping

hungry all the time does not help the matter very much, and I think a few have suggested that it made them fatter still. Now, a little surplus flesh or fat, whichever you may term it, is a pretty good thing. Witness Dr. Tanner's experiments described on page 497, Aug. 1st; and I might add also, what I have mentioned several times already. At one time in my life, in search of health I lived for eighteen weeks on ground lean meat—mostly beef-steak. I think that, when I started in, I weighed something like 135 lbs. At the end of the experiment I was down to about 112 lbs., and in this shape I could ride a wheel like a boy of fifteen. But it was quite imperative for me to have my beef-steak rations pretty regularly three times a day. The most that I craved during those eighteen weeks was ripe juicy apples. In fact, I lay awake night thinking how much I would give to have the privilege of climbing over into the orchard and helping myself as I used to do when I was a boy; and I think my good friend Dr. Salisbury made a mistake in saying that apples would harm me.

I am satisfied, as I have said several times before, that a great many people would get relief from their digestive troubles by taking up the lean-meat diet or sticking very closely to it, cutting off all sweets, unless it is such as are found in natural fruit. Well, it has been proved many times over (remember what I have quoted from Upton Sinclair) that one who is in a fair state of flesh can live not only days but weeks without any food at all, but using plenty of water, of course. It requires self-control, I am well aware; but what is a man in this world of ours who exercises no control over his appetite and animal passions? A great many times I think that cutting off sugar alone would relieve obesity; and, by the way, it would also cut off a lot of low passions and desires, as I know by experience. It always worries me when I see people putting heaping spoonfuls of sugar, or two or three of them, in a cup of coffee. The sugar in some other shape would not be as bad. A combination of hot water, with sugar enough just right to produce fermentation, and make "beer" in the intestines, is what causes a lot of complicated diseases. The superintendent of a great railway was troubled with terrible headaches. He went to a sensible doctor who, after questioning him about his habits, said, "You just stop



putting sugar into the coffee you drink three times a day, and at the same time abstain from using sugar in other ways, and then let me know if you are not all right." He followed the doctor's advice, and his headaches entirely disappeared.

I am sure Terry is right where he says that when you reduce the amount of food sufficiently your system will draw on the stored-up fat. At any rate I have twice proved this conclusively by the starvation cure. Plain simple food, without too great a variety, will do the same thing. It is the pie and cake and ice-cream, and perhaps nuts and fruit after we have *already* had a good square meal, that cause our troubles. The women-folks are largely responsible for this. I am begging Mrs. Root almost constantly to give us two less variety in our breakfast and dinner. Of course the table does not show off with so little on it, and, besides, it is not the fashion.

I recently saw a newspaper clipping to the effect that our Department of Agriculture, I think it was, appointed a commission of eight men and eight ladies, sixteen in all, to discuss the matter of the "high cost of living" and to provide a remedy. Well, in order to have a pleasant time while they transacted the important business they had a lunch. I presume that we who pay the taxes paid the expense of that "lunch." What do you suppose the bill of fare was for that crowd of sixteen? Well, it came to \$160, or about that, or \$10.00 for each plate while they discussed the *high cost of living*. I have suggested already in my former paper that the high cost of living does not need to trouble farmers very much if at all; but I forgot at the time that the farmers have to pay the taxes in order to provide lunches for some of our fashionable friends who hold important offices, at the rate of *ten dollars a plate*.

Terry suggests that it takes *will* power to stop eating when you are still ravenously hungry. Now you know, dear friends, I do not want to boast; but an illustration comes in right here. When I was between twelve and sixteen I had got hold of the vegetarian hobby. I was for four years so much of a vegetarian that I would not eat any chicken when we people on the farm had a "chicken dinner;" so you see I have pretty well tested a pure vegetarian diet and also a pure-meat diet; and my conclusion is that the great Father, in his merciful kindness and wisdom, has made us so that we can adapt ourselves to a great variety of food, or we might say to a wide condition of things. When some of

the family were once laughing at me about my vegetarian hobby a good kind friend who has been a friend to me through long years said something like this:

"Now, since you are making so much sport over our friend Amos and his notions, as you call them, I wish to say to you that I should be exceedingly glad if I could hold my own appetite and desires in such perfect control as that boy does. Very likely he will some time get over his vegetarian notions; but this habit he is forming in his early youth, of being able to control himself in these things where great men give way, will enable him to make his mark sooner or later."

Now, this friend's words have proven true—at least in a measure. But they would *not* have proven true had I not ultimately gotten hold of the strong arm of the Lord Jesus Christ. When I came to the point where I was obliged to admit that Satan was too much for me I would have *gone down* had it not been for my good mother's early teachings which prompted me to say as did poor Peter, "Lord, save or I perish."

Dear friends, T. B. Terry, when he talked about that sack of flour strapped to a man's back made a very happy illustration. I am tempted to laugh whenever I think of it; but do you not remember in reading in Pilgrim's Progress years ago (I hope you are reading it now once in a while at least) the picture of poor Christian toiling laboriously up a steep hill with a great burden strapped over his shoulders? I suppose he was wiping the sweat from his brow as he toiled along in that difficult uphill path. You may remember, too, how he came to a point where the burden tumbled off and went down into the "bottomless pit." His friend Evangelist touched the iron bands that Christian in his own strength could never have loosened; and the burden that had handicapped him for so many years was gone in an instant. Fifty pounds or more of useless flesh is a sad thing to carry through life! but, oh dear me! what is that compared with a load of guilt that many of us shoulder day by day, and can not, or imagine we can not, shake off? The papers have told us of a man who was guilty of murder. He escaped; but somebody else—an innocent man—was sent to prison for life for the deed. After many years had passed, and the guilty man was facing death, he confessed his crime, and the poor innocent man was set free. What sort of load did that guilty

man have to carry? I told you a few issues back of how much I was enjoying the presence of the Holy Spirit until I grieved it so it went away. A guilty conscience so burdened me that I could neither eat nor sleep until I got rid of that burden.

Our management has just asked how many there now are who took GLEANINGS at the time it was printed by windmill power. Huber tells me that we have letters from something more than fifty. These veterans who have stood by us all these years will remember the time when I knelt down in the darkness—spiritual darkness as well as real darkness—and asked God (if there was a God) to give me back the innocence and happiness of childhood, and how, down on my knees, I promised the great Father to give up all and every thing that I possessed, even life itself, to be freed from the burden of sin that was daily getting to be more and more burdensome. The prayer was answered, and with trembling footsteps I started out to explore the new heavens and a new earth; and it was then and there that these Home papers were started. God knows how soon or where the end shall come, or who shall take them up when I am called on to lay down my labors here on earth.

Perhaps we may consider how it is that men and women consent to handicap themselves with a surplus of avoirdupois equal to a sack of flour or even more. It may not be easy to say just what brings this about. If we should hastily decide that it was due to overeating, it might sound a little tough and severe on some of our feminine friends who happen to be "plump" as well as "rosy." It is bad, without question, to be overburdened with flesh; but, my dear friends, it is worse to have a burden imposed on us by giving way to sinful temptations; and not only give way, but *invite* sinful thoughts and actions. The tobacco habit is a burden, as I think all must admit; but intemperance is a greater burden, and generally an additional one. Not only is it a burden on the shoulders of the wretched victim himself, but a burden on the wives and children who often go hungry, and lack in flesh as much as the others we have been considering are oversupplied. Tobacco and drink not only impose a burden but a constantly increasing burden. There is no need of denying it, for we see it all about us. Why should a boy in his teens invite such a burden—a burden not only on his body but on his finances?

Let me illustrate the difficulty of once

getting rid of the burden of tobacco habit. A good friend of mine at one of the Michigan beekeepers' conventions told me of being helped by these Home papers, and then he gave this illustration: He had been teaching a class of boys in Sunday-school, but he was a user of tobacco, and he very soon saw he would have to give up tobacco or give up his class. What should he do? He said he had thought it over, and prayed over it; and finally he decided that he could not stand before that row of bright young faces as a spiritual teacher while he knew, and *they* knew that he used tobacco. He prayed for grace to give up the tobacco, and rejoiced in the liberty and happiness he had found in breaking off the habit for Christ's sake. Two of his sons stood near me while he told the story, and they were not tobacco-users, and rejoiced to see that their father was emancipated from a habit contracted years before—perhaps when *he* was a boy.

Now, I should be glad to end my little story right here. Years afterward, when I met him again, I found he had given up his class in Sunday-school, and gone back into slavery, to the tyrant Habit. Now comes the *saddest* part of the story. He held on to his class, and kept his pledge faithfully for *three* full years, and *then* went back. We want to realize how big a job it is to get rid of this burden of bad habits and not have them come back.

In the 7th chapter of Mark, verses 21 and 22, there is a list of sins that burden poor infirm humanity: "Evil thoughts, adulteries, fornication, murders, thefts, covetousness, wickedness, deceit, lasciviousness, evil eye, blasphemy, pride, foolishness." The next verse, the 23d, explains how we come to shoulder such filthy and disgraceful burdens. "All of these things come from within and defile the man." You see it is all our own fault. We permit these foul weeds to take root and grow; and they do not grow, mind you, without encouragement, just as the crops in our garden do not grow without encouragement.

A great deal is being said in the papers of late in regard to the high cost of living. A recent issue of *Green's Fruit Grower* tells us how a large part of this burden is needless. Read it:

#### HIGH COST OF LIVING.

"There are in the United States 10,000 men who are making and distributing liquor." This great army is responsible for the high cost of living. Here are 5,000,000 men, women, and children dependent upon the liquor business. Who feeds them? The laboring man who last year turned over \$1,000,000 to them; who divided the loaf that should have gone to his family with the



families of the liquor men. Then there are 200,000 non-producers in the jails and penitentiaries of the country, brought there by liquor. Who feeds them? The overburdened taxpayers. Then there are the men engaged in maintaining the courts and prisons and patrolling the streets to keep the influences of the liquor traffic within decent bounds which, with the idle rich, often made criminal by red wine, make up 5,000,000 more. Then there is another side to the problem. Last year the population of the United States increased 21 per cent, but the production of beef cattle only 3 per cent, and this because 106,000,000 bushels of grain that should have been fed to the cattle of the country went toward making liquor.

If this could have been applied to its proper

uses the cattle would have increased 21 per cent, and the price of beef been lower.

I must confess that I did not realize before how the liquor-traffic throws burdens on the shoulders of each and all of us because we permit it to go on, as well as on the shoulders of drinking-men and their suffering families.

Wherefore, seeing we also are compassed about with so great a cloud of witnesses, let us lay aside every weight, and the sin which doth so easily beset us, and let us run with patience the race that is set before us.—HEB. 12:1.

## Poultry Department

"FORECASTING THE LAYING HEN;" OR, SELECTING FROM THE FLOCK THE BEST LAYERS.

On page 675, Oct. 15, I suggested that Lady Showyou did not perform her great stunt according to Mr. Leonard's philosophy or system; but it looks just now as if I owed him an apology; for he says the reason she laid an egg so regularly at about the same hour every morning until she came near a "skip-day" was that, to follow his rule or discovery, she would have to drop her egg in the night; and, like most prudent hens, instead of doing this, and causing breakage and loss, she decided to hold the complete egg in her ovary until daylight permitted her to deposit it in her regular nest in an orderly and orthodox manner. See what he says about it below:

Mr. A. I. Root:—I wish to make a correction, and a few remarks on Lady Showyou's record in GLEANINGS for Oct. 15.

Her record for March was 29 eggs in place of 20, as you have it. She also laid 29 eggs in August—in fact, she laid 29 eggs for each month, March, April, June, July, August, and 31 in May.

In GLEANINGS you made no mention of the fact that this hen was in the egg contest in Missouri, or that she was but one of many laying nearly as well, and having *but one skip-day*, as I claim they must have; but in place of quoting her as corroborative of my claim, you use her as an example in proof against it.

You cite her as a 24-hour hen laying an egg daily, laying *occasionally* a little later each day until they skip, and do not recognize that her skips come regularly, and can not, therefore, be accidental nor even *occasional*, but must be due to some law.

Now, I wish to go on record as stating that this hen is a 25.24 hours *ovary interval* hen, that meaning is that she requires 25 hours and 24 minutes in which to create an egg.

She should lay 23 eggs between her skipdays in the months she lays 29 eggs, and she lays at 8 A. M. all of her eggs except three or four, because they come due the night before they are laid.

A hen that has an ovary interval of 25 hours must have eggs due one hour later daily; and counting from 2 P. M. they would be due at 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 P. M., and 1, 2, 3, 4, 5, 6,

7, 8 A. M., making 18 eggs due too late to be laid, and so held over until morning, and the three reported as laid scattering, totals 21; but as there were five to be laid scattering, there are two eggs carried over to be added to those laid before 8 A. M., so the actuality is 20 eggs laid before 1 A. M., and three eggs laid scattering—total 23, before a skip.

However, this is not the way I get at it. I find the hours in 31 days to be 744, and divide by her ovary interval, which gives 25/744 (= 29 eggs with a fraction of 19-25, which allows for the 24 minutes of her ovary intervals.

For ten months' laying there were 14 hens which laid 200 eggs or more, out of a total of 655 hens.

There were but two hens that laid better than my No. 1 in 9 months. There were but nine that laid better than my No. 2 in nine months. There were but ten that laid better than No. 2 in ten months.

My No. 2 has just finished two years' laying with 381 eggs.

My No. 1 laid, in her first two years' laying, 385 eggs.

These two hens have the same ovary intervals, and lay in the same manner.

There were ninety-two hens that laid 20 eggs or better in July contest. These hens were in the 36-hour ovary-interval class, or *better*, and skipped but *one day*.

These are the only kinds of hens I keep myself, and my claim is to be able to find them quickly.

There are hens in this contest that have never laid an egg, and others that have laid very few; and there is no *pen* that has done what it would had they been previously classified according to ovary interval.

Pen No. 28 (Brown Leghorns) laid in July as follows:

25, 21, 21, 23, 22; total, 114 eggs.

Pen No. 20 (White Leghorns), 23, 25, 23, 24, 22; 117 eggs.

Pen No. 13 (White Leghorns), 25, 15, 24, 30, 25; 119 eggs.

Many other pens could have made good records but for some poor individual. Many pens have one or two good layers, and the rest poor ones which cut down the total. By classifying as I suggest, many good pens could be made and the record beaten greatly.

Hens of 28-hour-ovary intervals or less lay like Lady Showyou. Below 28 hours their eggs fall a certain number of hours apart, according to their class.

Whenever the daily loss does not divide into the hours of any period of days evenly, the number of eggs to a cycle will vary to average up.

I am getting out mimeographed copies for publication, and expect there will be at least ten sheets the size of this—8 x 12.

I shall also offer my services to poultrymen who wish me to classify their hens into pens of the same laying ability. This is what you asked me if I could do, and I propose doing it. I have shown many, who say it is easy. A man came over from Jacksonville who is to start a large farm, and I shall either classify his hens or instruct him how to do so.

O. W. LEONARD.

St. Augustine, Fla., Oct. 30.

Surely our experiment stations, and those who have charge of the egg-laying contests now going on, can decide whether he is right; and if so, it looks as if he really *had* discovered something we had overlooked, or which was unknown until the present time. Can not somebody who is in daily practice with trap nests enlighten us?

#### INFERTILE EGGS; CAN THEY BE SORTED OUT BEFORE BEING PUT INTO THE INCUBATOR?

Some time back I said that competent men of experience had decided that no secreters or machine could tell any thing about the fertility of eggs before being given to a hen or incubator. One of our friends suggests that my position may be misleading, and submits the following:

In every lot of eggs taken from a breeding-pen there is a percentage unsuitable for hatching, or, rather, for using for hatching purposes. An experienced and competent man can set aside a part of this percentage simply by examining the eggs as he lifts them from the gathering-basket; but the other part of the percentage can be discovered only by candling—an acquirement which can be gained only by practical experience. If there is a small percentage of useless eggs in a well-kept breeding-pen, there will frequently be a large percentage in a flock kept as the ordinary farmer has his hens. This percentage often runs as high as forty, but say twenty-five. In most cases these twenty-five eggs are wasted! or if some of them do hatch they are worse than wasted by producing weakly or sickly chicks. If the farmer could avoid this loss, the advantage would be considerable in many ways. Last year the writer had charge of a poultry-plant where the stock had up to the time he took hold been abused in nearly every conceivable way. On arrival he found the incubators giving 70 per cent fertility, and of this 70 per cent about three-quarters produced living chicks. The hatching eggs were at once taken in hand, but without pre-incubating testing (for want of time), and the eggs then showed 80 per cent fertility. For the next hatches the eggs were carefully tested before being put in the machines, the result being 90 per cent fertility.

The specific gravity of an egg is no proof whatever that it is fertile or unfertile. The only way to know whether an egg is fertile or not is to break it and use a microscope on the contents. But pre-testing by a competent person usually gives results that more than pay for the time and labor.

Philadelphia, Pa., Aug. 14. FRED MARTIN.

Friend M., I agree that an experienced man or woman may sort out by the looks eggs that are more likely to be fertile; and perhaps the use of a candle or egg-tester may help a little, especially if the eggs are taken from a miscellaneous collection. Old eggs can be sorted out from

the fresh ones by means of an egg-tester. Some time ago my neighbor Abbott wanted me to save him some eggs for his incubator. I charged him only the price I received at the grocery; so he took the liberty of sorting out the best in the lot. He threw out under-sized eggs, crooked eggs, eggs with heavy shells, or those with wrinkles on the shells, and this secured a lot of nice-looking uniform-shaped eggs. There is no question but that such a course will pay. As you say, specific gravity has little or nothing to do with it; and yet the fellows who advertise this machine at a big price have the audacity to put in print that they have never had a magic egg-tester returned. I returned the one they sent me, and wrote it up on these pages.

In regard to the concluding sentence, I very much doubt whether a microscope would distinguish the germ before the egg has commenced incubation. Will somebody who has tested this matter let us know about it? Of course, this would accomplish nothing; but it would upset the claims of some of the swindlers who profess to be able to pick out the fertile eggs before they are put into the incubator. Why not put in as many eggs as you can by standing them on the small end in the incubator, and then throw out the infertiles in three or four days?

#### DOCTORING CHICKENS.

The following, from such excellent authority, we clip from the *Southern Farmer*:

"Poultry doctor" is not a profession—it is a mistake. There is no need of medical science in the poultry yard. Good methods and good common sense are better medicines than drugs.

Now, in addition to the above I want to give you something clipped from the *Rural New-Yorker*:

When you wish to tell your poultry-raisers how to save money I will tell you how to do it. A useful article, being a disinfectant that can be used in drink to help ward off parasitic disease, is germozone. It is sold at 50 cents for about an eight-ounce bottle. Mistrustrated from appearances what it was, I had it analyzed at the Connecticut Agricultural College department of chemistry, and they found it to contain a small quantity of permanganate of potash and a little alum, the rest being ordinary water. All the drugs in it would not be the value of one cent, the other 49 cents being charged for the water and the bottle. The same preparation may be prepared by any one by using one part permanganate of potash to one thousand parts of water (this germozone was somewhat less when used per directions), and a little bit of alum added. It is useful in roup, diarrhoea from germ infection, etc.

Massachusetts.

A. E. C. L.

The germicide mentioned in the above has been advertised for a year or two past in nearly all of our poultry journals. No



doubt it does some good; but just think of it! It costs 50 cts. a bottle, and yet the real medicine contained in it costs *less than one cent*. And this is a fair sample of the

fifty-cent remedies we find advertised in almost all poultry literature. Is it not about time for a revelation or a revolution or something else in the poultry business?

## Temperance

### PROHIBITION DOES PROHIBIT.

Not only our great railways, but the great banks of our nation, are demanding that their employees shall not enter saloons. The following item, which we take from the *Home and State*, Dallas, Texas, indicates the trend of business:

About two thousand years ago the old Devil himself started on old lie to the effect that a young man could take a drink of whisky or let it alone, and it would not hurt him. The old lie has been repeated all down the ages until many sensible men seem to believe that it can be done.

To answer that old lie, and seeing the necessity for protection against it, not long ago the Fifth Avenue National Bank of New York passed some stringent rules governing their employees, and some of those rules read as follows:

"You must not drink any intoxicants with meals in public restaurants." "You must not enter any saloon." "You must not enter any gambling house." "You must not frequent Broadway resorts or become conspicuous where the great white lights blaze."

The National Bank of Commerce of St. Louis, one of the largest national banks in all the Southwest, having 330 employees, recently passed similar resolutions governing their employees, and the National Bank of Commerce went further and said: "The use of cigarettes will not be tolerated under any circumstances." "Late hours, the habitual use of intoxicating drinks, the frequenting of saloons and questionable resorts, will be deemed sufficient cause for dismissal."

When some twenty sane and sound business men gathered around the directors' table and passed those rules, none of you would look into their faces and say they were a group of prohibition cranks, but on the other hand you would say that they were taking the sensible way of answering that old black lie that a young man can take a drink or let it alone and it will not hurt him; and you will let me add to those rules, and say with all the love and all the force I have, that the old lie that a young man can take a drink of whisky and it will not hurt him is the blackest old slimy lie that was ever told.

I must confess that it is a surprise to me to be told that any city *bank* has as many as 330 employees; and may the Lord be praised for the information that not one of the 330 is *permitted* to use cigarettes.

### WHISKY AND BRANDY IN CANDY FOR CHILDREN.

We clip the following from the *Nashville Tennessean and American*:

#### MAKING WAR ON WHISKY CANDY.

Dr. Lucas P. Brown, State pure food and drug inspector, having discovered that certain candy-makers are putting whiskies and brandies in a special brand of candies which they have put on the market, has inaugurated a vigorous war on the practice, and, despite the fact that the grand jury

of Shelby County threw out the suits brought against these candy-dealers, he says there will be no backward step in the prosecution of the law-breakers.

Upon finding that candy of this kind was being sold in Nashville, Dr. Brown let it be known that such sales were unlawful and would not be tolerated, whereupon the dealers adopted the wise course of refusing to deal longer in such wares. It was enough for the Nashville dealers to be apprised of the fact that such violations of the law would be prosecuted, for they at once advised Dr. Brown that they would not again be guilty of the offense.

"The practice of putting brandy and whisky in candies, thus cultivating a taste for liquor among our little boys and girls," Dr. Brown says, "must stop, and I believe that there is strong public sentiment back of me in this campaign for the stopping of such practices."

I remember hearing some time ago that there was brandied candy on the market, and that children were buying it; but I supposed the business of making and selling such candies had been stopped. Our southern States that have been so vigorous in ruling out the liquor traffic should certainly be wide awake in putting a speedy stop to this sort of business.

### ONE HUNDRED THOUSAND DOLLARS CONTRIBUTED BY A SINGLE BREWERY TO FIGHT PROHIBITION.

We clip the following from a recent issue of the *Independent Magazine*:

A lawsuit brings out the extraordinary fact that a single brewery in Worcester, Mass., certainly not one of the largest, has spent \$100,000 in the last ten years in political contributions to fight prohibition. Just as Congress is conducting an investigation on contributions for presidential campaigns, it would be well if every State legislature should order an investigation of the sums contributed to prevent the enactment of laws suppressing the liquor traffic. They must amount to many millions, largely spent in corrupting the electorate.

Things like the above seem to be coming to light almost daily; and yet what are we as a nation doing about it, or are *going* to do about it? What are the churches, the Christian people, and the temperance people doing or going to do about it? Is money, and dirty "tainted" money, going to continue to head off the votes of good men and good *women*?

#### A GOOD MOTHER—WHAT IS SHE WORTH?

I read *Our Homes* first, then the temperance column. I never drank a glass of liquor in my life nor used tobacco in any form. I thank God for a good mother.

South Westport, Mass., Oct. 23. J. S. WILCOX.